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THE BUILDING NEWS

AND

ENGINEERING JOURNAL.

VOLUME THE SIXTY-FIRST.

JULY TO DECEMBER, 1891.

PUBLISHED (FOR THE PROPRIETORS) BY E. J. KIBBLEWHITE,

AT THE OFFICE OF THE "BUILDING NEWS,"

332, STRAND, LONDON, W.C.

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THE BUILDING NEWS
AND ENGINEERING JOURNAL.

GUESS ESTIMATES AND VERBAL AGREEMENTS.

THE old complaint against the architect of under-estimating the cost of his designs has been fought out again in the recent important action of "Cutler v. North," a full report of which case we gave in our last issue. Into the particular circumstances of that suit we do not propose to enter, as they concern only the parties to the action; but there are certain points which are of considerable interest to architects, and a few questions that are likely to be asked. The decision of the jury is a just and welcome one, and the ruling of the judge, Lord Chief Justice Coleridge, will become a precedent of value in future questions of this kind. The main defence set up—that the architect had exceeded his estimate—is the old one, and after all, what does it mean? In very many instances it merely amounts to this: that the architect has given a rough idea off-hand of the approximate cost of carrying out a design which has not assumed any definite shape or been definitely agreed upon, or its limits ascertained; and the client has foolishly accepted the figure as a final and exclusive estimate, or, as in this last case, has wrong-headedly made it a defence to the action of an architect to recover his commission. The professional evidence adduced the other day, to the effect that an approximate estimate might have been formed which could not be less than £80,000 if the cube had been taken out, does not amount to much, as it is well known that when an architect is asked off-hand for his opinion of the cost, he has not the time or the drawings at hand to get out the cube contents, even roughly. Mr. Cutler probably, and for his own credit we cannot believe otherwise, did not like to commit himself to any definite sum when the question was asked in a vague manner by his client, and, in fact, he denied having given the limit of £30,000, as alleged by the defendant. The lesson is one, however, that might be taken to heart. Fellows of the same Institute with Mr. Cutler did not hesitate to prove the inadequacy of the amount alleged to have been given; but they could not have affirmed that any architect would hurriedly, without going into a calculation, commit himself to any definite statement of cost. That any reasonable business man should attach any value to a guess made before even an approximate cubing had been entered into, is surprising. Nor, on the other hand, is it wise of an architect even to venture a figure as to the cost of large, extensive buildings, before he has made himself acquainted with the whole extent of the requirements, which guess is so often used against him if any disagreement subsequently occurs. We blame an architect for being so precipitate as to give any undertaking as to cost at this stage. Early estimates are generally low—there is a desire not to make them look formidable; further, they are often made on sketch plans which are always imperfect. On these data the client is not unwilling to proceed, and even to hurry on the business. We have an instance of this in Col. North's wish that operations should be commenced at Averyhill, Eltham, even before the necessary quantities, specifications, and contracts had been prepared, which his architect insisted should be done before his departure for Chili. The work was commenced accordingly. We have heard cases of this sort before, where a client leaves the work in the hands of his architect to make contracts to large amounts, and to carry on the building. Such a course is never satisfactory. An architect is safer not to make himself responsible for large amounts without some definite agreement in writing. In the case referred to, the architect prepared contracts to the extent of some £85,000, which, however, was to be measured up when done—a large amount beyond the verbal rough guess by the architect of £40,000 alleged to be given for a preliminary design. A disagreement arose, as might be expected, and the defendant contended that the architect had been guilty of negligence in giving an estimate which he knew must be exceeded. On the other hand, it was not denied that the defendant had obtained a luxurious mansion, replete with every convenience and accessory, and that the work was well done. The charge of negligence is one of the easiest an employer can bring, but in this case it was not made. The admission that the work was well executed, and there was nothing to complain of, was a strong point for the plaintiff. Very often a fault is "discovered"—inferior workmanship or something not carried out as specified; but we have no allegation of the sort here, perhaps because such a charge would have injuriously reflected upon the assistant architect. Be that as it may, it is necessary to point out that some employers who complain of excessive cost very seldom consider the value of the work actually executed. If they have value for their money, they ought to be satisfied. If they say that the design is more than they desired, and that a less costly building would have satisfied them, they are still to blame for not making the cost an essential condition with their architect, instead of allowing him to run away with the idea that expenditure is a secondary matter, and their purse-strings are not tied. As we pointed out lately, both architect and building owner often mislead each other in this matter. If the employer is extravagant in his requirements, asks for a splendid mansion with large rooms, marble staircases and halls, picture and sculpture galleries, conservatories, and winter gardens, stabling and other accompaniments of a gentleman's residence, he cannot reasonably turn round upon his architect and charge him with having exceeded the cost. No restriction is put on the designer's freedom, and if the value of the materials and labour expended on the work can be guaranteed by actual measurement and valuation, how can the client be said to pay too much for his requirements? Unless, perhaps, he thinks the brains of his architect are his property, he has no right to expect him to give an explanation of every hundred pounds expended. There are not a few clients, like Colonel North, who refuse to pay their architect's commission on an amount which is trifling to them, expended on their own self-gratification to possess a splendid mansion. Such employers never regard the study and labour necessary in the design, the selection of good models and details, of appropriate decoration and fittings. Their one object is to obtain all they want at the least possible expense, and to cut down the architect's commission to a minimum. Even with such sums for builder's work as £99,396, and decorative work as £35,456, the architect's commission of 5 per cent. on the first and 7½ per cent. on the latter is begrudged.

An important question which arises out of this action is, on what amount the architect can claim to recover commission? That is to say, Is he entitled to recover his percentage beyond the amount he had first estimated? The defence alleged that he was not. Thus if an architect gave his client a rough idea that the building would cost £40,000 and it actually cost over £99,000, he should only claim a percentage of 5 per cent. on the smaller amount—a proposition too preposterous to entertain. But the idea commends itself strongly to the unprofessional mind, which thinks that if the estimate is exceeded the architect should bear the loss for his negligence or inaccuracy: a conclusion that would be fair enough if the additional expenditure were incurred by the architect. Again, it was contended that the commission should not be recoverable on the cost incurred after the architect was suspended—a plea which does not take into account that an architect's design and services are for the whole and complete work for which he has prepared plans and specifications, and cannot be divided or cut off at any point. The "commission note" from architect to defendant confirming the conversation as to professional services was the turning-point in the case, as there was nothing mentioned about the amount, but simply the rate of commission —7½ per cent. on the total amount of the decorative work and 5 per cent. on the building, the latter being divided between Mr. Cutler and his assistant architect. The memorandum was accepted by the defendant, who had no leg to stand upon. Had this note not existed, the issue of the case might have been different. The importance of a written agreement between architect and client is brought prominently to the front in these

proceedings, and is a point that deserves the attention of everyone engaged on works, especially on those which are likely to exceed the estimate. In buildings of the extent and character of those at Eltham it would be fair to owner and satisfactory to the architect if there was an agreement to pay the usual percentage up to a certain amount—say that of the contract, and a smaller commission on any further expenditure. When an architect's charges are calculated on so large a sum as £104,000, it may be reasonable to make some reduction in the rate. A very unfortunate and prejudicial public opinion exists that it is to the architect's interest to run up expenses, hence it is necessary to remove the impression. The percentage commission has, on this ground, not been favourable to the profession, and the sooner some more rational mode of remuneration is devised the better. Why an architect should not charge a "lump" sum like a painter or a sculptor, is a question that has never been clearly answered. The architect would be saved many anxious moments as to supposed conversations about limits of cost, and the public could not run away with the idea that it was the architect's interest to increase cost. Another weakness is brought out in the case: that of reliance on verbal understandings. We have repeatedly shown how worthless these understandings are in building transactions. A client may extort from the architect a kind of hap-hazard statement as to cost, which means practically nothing more than a random guess about work of which he does not know the limit; while the architect may receive a verbal assurance that his 5 per cent. will be paid, but upon what amount is not clear. These are matters that should be fixed unalterably by writing. Young architects appear to be afraid of this course: others do not like to commit themselves to written statements. But the source of all difficulty and all trouble with employers is the hasty and ill-considered answers to questions before any calculation either by cubing or more detailed process has been made. A few hours' labour will enable a fair approximation of the cost to be ascertained, and surely it is better not to satisfy the curiosity of the client, who on the spur of the moment may commit one to a statement that cannot so easily be repudiated.

ONE-STORIED BUILDINGS.

FEW arrangements are satisfactory, architecturally, in which the buildings are spread over a large area of land, and for the purpose of illustration we may cite a large county infirmary or hospital, the several blocks of which are separated by wide spaces from each other, and are of single story. The chief satisfaction an architect gets out of a design of this kind is that of grouping his buildings, and in arranging his blocks on some symmetrical plan, so that when they are seen at a distance, or from rising ground, the design may be comprehended as a whole. When such a bird's-eye view cannot be had, the result is by no means an agreeable one, as the single-story pavilions or offices destroy all architectural solidity and mass, and the appearance presented is that of a hetereogeneous collection of buildings or sheds without cohesiveness. The single-story building is not a favourite one with the architect. Even in those cases where he is not limited in cost, and where he can give an architectural character to the walls and roof, the problem is not easy. Soane, in the Bank of England, has shown the possibility of making a one-story, or at least a one-Order, façade, and although some portions of this building is three storied, the treatment externally has all the effect of a single-story building. Of course, we except such edifices as St. George's Hall, Liverpool, the Birmingham Town Hall, and other colonnaded structures of large top-lighted apartments and halls, which have a height and dignity which give them a monumental character, and confine attention to those smaller and more modest buildings with which the architect is so often called upon to deal.

What to do with a single-story pavilion to make it presentable externally, is not very obvious. The facile pencil of the artist may invest such a building with a piquancy or expression of its own by a few of those touches and licenses of the pencil which are so telling in perspective drawings; but where the stern realities of practical construction have to be considered free from those little exaggerations of scale and proportion which are permissible in a drawing sent in for competition purposes, the matter becomes a very different one. The use of high parapets and corner piers carried up as turrets, with lofty roofs of the Mansard form may give a dignity to the structure, but when one has to deal with certain heights, with plain, overhanging eaves and plain walls with sash windows in them, a by no means exalted effect is the reward of our labours. Practical, commonsense, and ugly are terms which express more fully the result. Elevation can be given by raising the ground-floor level as high as possible, and by adopting high-pitched roofs. But how can these expedients, useful as they are, make a row of single-story pavilions look anything but a very "sorry" row of sheds? We can commiserate with the architect in having to design a building of this character; but we know that hospital authorities have unanimously decided upon the advantages of this mode of ward construction.

The requirements of ventilation and top-lighting often make it imperative to adopt single stories. Large areas covered by buildings are necessarily made up of buildings of single stories. Take, for example, the administrative block of a large hospital or school. The kitchen offices and stores are generally one-story high, the front portion only being carried up. When the building is erected the appearance of the central block has an unfinished look, and where a massive structure was expected nothing but the roofs of lower buildings appear. Incorporation with the higher portions of the building is almost impossible. The joining of the lower roofs against the walls of the higher structure is never pleasing, the junction of gutters and valleys often awkward, insecure, and expensive, and the general effect of the whole group is spoilt. The habit of mentally seeing what parts of the structure are carried up and appear is not one of the faculties which those who prepare plans for competition acquire very readily. The plan is delusive on this point: it shows a good arrangement of rooms and corridors; but directly the walls that go up appear above the surrounding roofs, the ideal is lost. This delusiveness of plan in disregarding the actual effect of the building when completed is often to be observed in competition designs. For instance, let us take as an example a set of designs for public baths and washhouses. By the necessities of a design of this nature the buildings are mostly of one story. The swimming-baths are necessarily carried up to a certain height, and lighted by a lantern in the roof, which is of iron; while the smaller private baths are roofed over at a much lower level, together with the washhouse, laundry, and other offices. How slight is the opportunity of making such a set of buildings architectural? The semi-engineering character of this kind of building would be a reason for handing it over to an engineer; but the notion is repugnant to the pretensions of the architect. Yet, after all, there is very little that will admit of architectural treatment: the swimming-bath, in its usual form and construction, is by no means capable of being made a feature of attraction. The roof must be economical, and admit light through it, and the type of iron roof with skylight used by engineers in railway stations is frequently met with. Economy also dictates a similar roofing over the private baths and wash-houses. The whole design resolves itself into a number of single-story compartments top-lighted. The large baths may be built high, and are made to represent halls with windows above the roofs of the lower portions; but there is little to suggest an external design, except the front, which may be a block of administrative offices. Polytechnic and technical school buildings are also composed largely of single-story compartments. The workshops and the baths attached to the former are kept low; but as these parts can be arranged behind or be inclosed in the blocks of the main buildings, their lowness does not so materially affect the whole group.

It may be argued that architecture is very little concerned with designs of these descriptions, in which the "plain shed" enters so largely. But the problem is one of the day, and it is for the profession to see how an assemblage of one-story structures can be made agreeable and coherent. To make a façade we must have two or more stories or an elevation of some height; but the low, single-story structure seems to defy all canons of good architecture, as far as external conditions are concerned. There seems to be only one way by which single-story buildings can ever hope to be brought within the rules of architectural composition, and that is to study them on the ground plan—not at random to suit crooked corners of the site, and to be hidden by other higher blocks as if they were merely temporary sheds. Make them portions of the integral masses connected with the main and higher blocks in such a manner that they may appear to balance and become accessory features. The high blocks that appear in the general view or perspective ought to be made to have some connection with those portions that are low-roofed, instead of being totally indifferent to their humbler purposes. A large and ramified public building under one single roof, inclosing within its external walls every minor office, is imposing, but wastes room, unless mezzanine floors are provided, and is certainly less healthful, inasmuch as it sacrifices top-light and ventilation to windows for the sake of external uniformity.

A SANITARY CRUSADE THROUGH SOUTH AFRICA.

(*Continued from page 895 in last Volume.*)

PRETORIA, the capital of the Transvaal, which may be said to be the richest mineral country in the world, though only about forty miles from Johannesburg, is not an easy place to reach when, in the rainy season, the rivers are "up." The tracks are certainly the worst and most dangerous in the whole world to travel upon, accidents involving loss of life and limb being of frequent occurrence. A few days previous to Mr. Boyle's visit to Pretoria, the coach that runs between Johannesburg and the capital was washed away when crossing a river, and it was with the greatest difficulty the passengers were rescued, seven mules being drowned. A number of Boers crossing in a "pont" with cattle were also washed away and all drowned.

This state of affairs on the main highway is discreditable to the Transvaal Government, as bridges could easily be built over all these rivers, and a considerable annual saving effected in life and property. An attempt was at one time made to build an iron bridge across one of the rivers; but the first high-water washed the foundations clean away, and nothing has been done since, though it is understood that another attempt is shortly going to be made.

Pretoria is charmingly situated in a valley surrounded with low hills well wooded. The town is laid out somewhat after the plan of Salt Lake



TOWN HALL, DURBAN, NATAL.

City, which it resembles both in appearance and situation. There are a number of handsome and substantial buildings in the principal streets, and others are in course of erection, which, when finished, will greatly add to the appearance and importance of the place. The new Houses of Parliament, now drawing towards completion, form a very imposing and striking feature, and speak volumes for the advance the Boers are making in their appreciation of the higher forms of architecture. Mr. Boyle has submitted a scheme for the ventilation of the building, which he surveyed for that purpose. The air-pump ventilators are adopted for the new Pretoria Club, Court House, Hospital, and other buildings.

Messrs. Zwann and Van Dyck, the Dutch architects at Pretoria, report: "We have had the experience that your ventilators are highly satisfactory and prescribed for many works."

The pail-closet system is employed, and the water supply is abundant and good. The town will shortly be lighted with the electric light and provided with electric street cars.

After another rough experience of day and night travelling by coach, Mr. Boyle entered Natal, "the garden of South Africa," skirting the fatal Majuba Hill and crossing the famous Lang's Neck. He visited the graves of the gallant soldiers who were sacrificed there, amongst which was that of the ill-fated General Colley, and was glad to see that every care was being taken of the place, and that the fallen brave were not forgotten. Pietermaritzburg, the capital of Natal, is very finely situated, and seems to be embowered in a large park or garden. There are several handsome buildings in the town, the most imposing being the House of the Legislative Assembly, of Classic design, and which is ventilated with the air-pump ventilators. Colonel Hind, Chief of Public Works, under whose direction the ventilators were applied, states that the ventilation is "very successful." The air-pump ventilators are in use at the Barracks, and are adopted for the ventilation of the new Town Hall and Municipal Buildings, also the new railway station, which are in course of erection from the designs of Messrs. Street Wilson and Barr, who have adopted Messrs. Boyle's system for, amongst other buildings, the new railway station, Durban, and the hospital. In a letter to Mr. Boyle they say:—"We are glad to hear that you are arranging for a stock of your ventilators to be kept here. We have specified them to be used in the new Pietermaritzburg Town Hall, and other buildings which we are carrying out."

The business portion of Durban is situated on a sandy neck of land, the better class of residences being built on one side of a finely-wooded hill at the back, named "The Berea." According to the census of the South African Colonies, which has just been completed, the population of Durban is about twenty-five thousand, though the proportion of natives over Europeans in Natal is very great, being as high as ten to one. The pail-closet system is used in Durban, but it is proposed to adopt a complete water sewerage scheme which has been prepared by the borough engineer, Mr. J. Fletcher, C.E., and which seems to be a very perfect system, embracing all the latest improvements. Pneumatic ejectors will be employed, and the sewage have its outfall into the Bay Channel, where there is a very strong tide or race, which will carry the sewage with considerable velocity out to sea, and clear of the coast. It is proposed to ventilate the sewers by means of vertical shafts and ventilators, and plans and estimates of the Boyle system have been prepared.

Mr. Fletcher writes:—"I predict that your well-known air-pump ventilators will be largely used in Durban." There are a very large number of Hindoos in Durban, who, from their filthy habits are, along with the Kaffirs, a standing menace to the health and safety of the inhabitants. No female dare walk out unprotected after dusk, nor in unfrequented places during the daytime, the number and daring character of the outrages committed by Kaffirs being alarmingly on the increase, in spite of the death penalty being inflicted for this offence. Unless strong measures are taken to effectually put a stop to this scandalous state of affairs, a woman's life in Natal, as it, in fact, is at the present time, must be one continual terror.

The Town Hall, of which we give an illustration, is considered one of the finest architectural structures in South Africa, and it certainly is a very stately pile. It was designed by the late Mr. Dudgeon. The ventilation is carried out on the Boyle system, the central flêche on the roof containing an air-pump ventilator 6ft. in diameter. This building is esteemed to be the best ventilated in the colony. Mr. W. H. Powell, F.R.I.B.A., Durban, states:—"I have been in the habit of specifying your ventilators for several years; I know of nothing better of their kind."

The Masonic Hall is one of the largest and most conspicuous buildings in the town; it is also ventilated with the Boyle system. The architect, Mr. M. Holmes, reports:—"I shall always have much pleasure in recommending your air-pump ventilators for use in Durban and elsewhere, as from practical experience I know them to be a thoroughly good and useful article."

The water supply is fairly good, and a scheme is now under consideration to provide a practically unlimited supply.

Messrs. Parker, Wood, and Co. (Limited), Durban, who have branch houses all over South Africa, have been appointed Messrs. Boyle and Son's agents for Natal, the Transvaal, Kimberley, and Harrowsmith, Orange Free State.

Delagoa Bay, though a splendid harbourage, is an exceedingly unhealthy place for Europeans, and fever abounds, caused by the malarial exhalations from a very pestilential swamp, which, however, might, without much difficulty, be filled up, and the place rendered comparatively healthy. There is a probability that this may soon be done, but not by the Portuguese, when there will be a big contract for some engineer. The sanitary condition of the Port Lorence Marques is a disgrace to a people professing to be civilised. The Portuguese all along the East Coast, whatever they might have been at one time, are now mostly a degraded lot of half-caste rascals, whose principal occupations are the slave trade and selling to the natives strong drink of a most poisonous description, which is rapidly decimating the coloured population of South Africa. These scoundrels are a curse to the country, and the sooner they are ousted the better it will be for civilisation and humanity. The public indignation excited at the disgraceful treatment by the Portuguese of Sir John Willoughby and his party when they recently attempted to enter the Pungwe river from Port Biera on their way to Mashonaland will certainly go far to hasten the end, and from what Mr. Boyle learned from Sir John Willoughby himself and others of the party, whom he met at Durban on their return from Port Biera, the published accounts of the affair are in no way exaggerated, but, on the contrary, rather minimise the enormity of the outrage.

There will soon be a profitable opening in Mashonaland for all connected with the building trades, and it should not be lost sight of. Skilled artisans, for which there is even now a demand, such as joiners, bricklayers, stonecutters, and metal-workers, will have no difficulty in earning ten to twelve pounds a week. Labourers should not go to South Africa, as natives do all that class of work.

The Pungwe route is much the cheapest and most expeditious, though not at present the healthiest, being only 400 miles from Port Biera to Fort Salisbury, over a hundred miles of which

is by river. Transport costs at present one-sixth less than viâ Cape Town and Mafeking, Bechuanaland, though this is much the healthiest and most comfortable route. Mr. Boyle travelled through Kaffirland, and visited a number of Kaffir Kraals, or villages, which he was pleased to see were kept very clean and orderly, the natives being civil and obliging, and free from the vice and dirty habits of those who live about towns and become civilised (?)

Grahamstown reminds one of an old English town, and somewhat resembles Bath, the situation and surroundings being very similar. It possesses a handsome cathedral with a fine stone spire, which is a landmark for miles around. The cathedral is at present undergoing alterations, and a chancel is being added. The ventilation will be carried out on the Boyle system. The architect, Mr. W. White Cooper, M.A., Grahamstown, states: "I have very much pleasure in testifying to the value of your air-pump ventilators, knowing them from experience to be the best in the market." The Asylum, St. Andrew's College, and other buildings in Grahamstown, are ventilated with the air-pump ventilators. This town is considered very healthy, the sanitary arrangements being well looked after, and the water supply good. Port Elizabeth, which has a population of 20,000, and claims to be the principal commercial town of the colony, has a thriving and substantial appearance, being finely situated on the shores of Algoa Bay. From the natural advantages of its position it ought to be a well drained and thoroughly healthy town; but, like Cape Town, it is at present certainly not the one, nor can it truthfully be said to be the other, the smells arising from the defective drainage, so far as there is any attempt at drainage, being very bad indeed. It is now proposed, however, to have all this changed, and Mr. Boyle, along with the mayor and other officials, made a survey of the existing arrangements, and plans and estimates have been prepared for the application of the Boyle system, which it is proposed to adopt. A new theatre and opera house are in course of erection, the ventilation being carried out on the Boyle system. The architect, Mr. George W. Smith, the Government Surveyor, reports:—"Although, so far, I have not used many of your large-size ventilators, a good many of the smaller sizes have been erected in public and private buildings. I am quite sure if your valuable ventilators were easily procured here, nothing else would be used." The air-pump ventilators have been adopted for the Hospital, new railway station, and new schools, and plans have been submitted for the ventilation of the Town Hall and Municipal Buildings.

Messrs. Griffiths and Co. have been appointed Messrs. Boyle's representatives at Port Elizabeth and for the Eastern Province of Cape Colony. There is, without doubt, a great future before South Africa, and as a health resort alone it is unrivalled, especially for those suffering from pulmonary complaints, and many of the leading medical men in Europe now recommend their patients to go there. On his return journey, Mr. Boyle visited the Islands of St. Helena, Ascension, Teneriffe, and Madeira, the sanitary condition of which places were found to be fairly good. At St. Helena a visit was paid to Napoleon's tomb and "Longwood," the house wherein Napoleon died; but it was melancholy to witness the meagre remains of the internal portions of the house, which have been stripped of most of the original material and replaced with rough, common stuff.

There are few, if any, who possess such a thorough knowledge, gained from actual observation and practical experience, of the various methods of ventilation employed in the different countries in the world as Mr. Robert Boyle, he having, in the course of the last quarter of a century, visited, it may be said, every country, and noted the requirements of each, and the success of the ventilating arrangements adopted. The merits of Mr. Boyle's system are well known, and it has certainly achieved a success attained by few inventions, and made his name in connection with ventilation a household word throughout the world.

THE ROYAL COMMISSIONERS' REPORT ON WESTMINSTER ABBEY.

THE final report of the Royal Commission appointed to inquire into the present want of space for monuments in Westminster Abbey has just been issued. The Commission consisted of the Hon. D. Plunket, First Commissioner of Works, Sir A. H. Layard, Sir F. Leighton, P.R.A., Dean Bradley, Mr. L. J. Jennings, M.P., Mr. A. Waterhouse, R.A., and the Hon. Harold Dillon. The report opens with an historical review of the series of events by which the Abbey has from its foundation been constantly identified with English history. It groups the many suggestions made since 1854 for providing additional space for memorials in order of locality as follows:—

1. The addition of a building on the north side of the nave.
2. The adaptation of the existing Chapter-house.
3. The acquisition of a site and the erection thereon of a cloister or chapel to the east and south of Poets' Corner.
4. The utilisation of a vacant space adjoining and communicating with the south side of the Great Cloisters.

Each of these proposals for additions is dealt with in detail. The first is that favoured by Mr. J. L. Pearson, R.A., who brought out two plans for solving the problem, either by (*a*) an additional aisle to the nave with chapels attached for the display of monuments, or (*b*) a double cloister, glazed on both sides, inclosing a garth, with approaches from the Abbey. Notwithstanding the weight due to the high authority of Mr. Pearson, the Commissioners are unable to approve of the expedient he advocates, either on its own merits or as a scheme in competition with others suggested for the south and south-east sites. "The objections are grave and practical; and even admitting that it is free from any difficulties connected with the acquisition of a site, advantage so gained would be outweighed by obvious drawbacks and by the unpopularity which would certainly beset its adoption."

The proposals for the adaptation of the fabric and site of the existing Chapter-house and its vestibule are, we are glad to see, dismissed as impracticable, while as the Chapter-house passed three centuries since into the possession of the Crown, it is virtually unavailable as a monumental chapel. The scheme of the late E. J. Tarver to build a wreath of chapels round the Chapter-house would, the Commissioners think, "entirely change and destroy the character and charm of this ancient and picturesque edifice." Another proposal, one of four distinct parts of an extensive and costly scheme laid before the Commission by Mr. J. Pollard Seddon, on behalf of himself and Mr. Lawrence Harvey, is almost identical with the suggestions of Mr. Tarver. It is described by its authors as a design for "a cloister of six chapels surrounding the Chapter-house." In the opinion of Mr. Pollard Seddon these chapels "would materially improve the exterior effect of the Chapter-house," an opinion in which the Commissioners are unable to concur.

Both the late Sir Gilbert Scott and the late James Fergusson proposed the acquisition of a site and the erection thereon of a cloister or chapel to the east and south of Poets' Corner. Mr. Pearson has prepared a scheme on somewhat similar lines, showing a "monumental chapel" facing east and west (instead of a "transept" running north and south, as suggested by Mr. Fergusson), which would be erected on the site occupied by Nos. 2, 3, and 4, Old Palace-yard, and the ground at the rear of those premises up to the boundary line of the Abbey precincts. A somewhat similar proposition was submitted by Mr. Somers Clarke, F.S.A. It differed from Mr. Pearson's plan in that it would cover the sites of Nos. 1 and 5, Old Palace-yard, in addition to those of Nos. 2, 3, and 4, and would present a frontage almost identical in line with that of those five dwelling-houses, the leading principle and greatest attraction of both schemes (that of Mr. Pearson and that of Mr. Somers Clarke) being that the new building would be actually united with the Abbey church by a covered way.

Of these two proposals, that of Mr. Pearson appears to the Commissioners to be less open to the objection that the erection of any structure on a site cleared by the removal of the Old Palace-yard houses must mask the outlines of the Chapter-house, and interrupt the view of the Chapel of Henry VII. In order to meet the objection, which he acknowledged, Mr. Pearson prepared a modified plan, occupying a site 25ft. further to the south. The Commissioners agree with him that this would be less open to criticism. In the last place, the Commissioners considered the question of the utilisation of a vacant space adjoining and communicating with the south side of the Great Cloisters, on the site of the refectory, which was favoured by Mr. Pearson. He proposed to add a row of columns along the north and south sides of the building, and to groin over the whole space in stone. The arcading which exists in the north wall could be preserved, and columns could be built in advance of the wall, arches being turned at the level of the top of the Norman arcade, which would carry the walls. Mr. Pearson roughly estimated the cost of such a building at about £30,000.

In such a building room would be found for national commemorations for 100 or 200 years to come; and it might be the first instalment of a larger design for covering later on the whole extent of the refectory and Ashburnham-house, should it ever be restored to the Abbey, with another cloister, of which the proposed chapel should form the northern side. The adoption of this plan has, in the opinion of the Commissioners, a further special merit not shared by any other brought forward—namely, that it would be hardly, if at all, visible from the outside, and, therefore, could not interfere or come into comparison with the Chapel of Henry VII., the Chapter-house, or any of the other older buildings.

The conclusions and recommendations of the Commissioners are as follows:—

We have to report that space may probably be found beneath the floor of the Abbey for interment for at least 100 years to come if the duty of granting such burial be discharged sparingly and with careful regard for the greatness of the national honour thereby conferred; but that no room now remains in the interior of the building for important monumental commemorations. . . . We are of opinion that no interference with existing monuments short of removal or rearrangement on a large scale would provide adequate facilities (for the continuance of the roll of such monuments).

We find that provision adequate for such commemoration cannot be made in any existing building within the precincts of the Abbey, nor in any place not immediately connected with it. We have, therefore, taken evidence and considered plans for providing at the Abbey an additional place for memorials; and we have further to report that of the various schemes which have been brought before us there are two which we commend as specially suited to the purpose. The one proposes to clear an area now occupied by certain houses in Old Palace-yard, and to erect upon a portion of the ground so cleared a monumental chapel connected with the Abbey at Poets' Corner.

We recommend, whether the latter part of this proposal be adopted or not, that no time should be lost in removing the houses in Old Palace-yard above referred to, which not only conceal to a great extent the architecture of the Chapel of Henry VII. and the ancient Chapter-house, but are also a constant source of danger to the Abbey from fire. The other plan contemplates the erection of a monumental chapel on a vacant piece of ground, the site of the old refectory, lying immediately south of the Great Cloister and parallel to the nave of the Abbey. We believe that one or other of these last-mentioned schemes would provide a solution of the problem which has been submitted for our consideration. After a careful review of the arguments, we recommend that of the two schemes the latter should be adopted, and that, in order to carry it out, so much of the land required for that purpose as, under the Public Schools Act, 1868, became vested in the Governing Body of Westminster School, should be reconveyed by statutory enactment, if necessary, to the Dean and Chapter of Westminster Abbey.

All the Commissioners sign the report, but Sir A. H. Layard, Sir F. Leighton, and Dr. Bradley append a minority report, stating that they feel themselves obliged to dissent from its last paragraph, which recommends the adoption of the refectory site, and from such other passages as point to that conclusion; and advise that preference should be given to the site at the south-east of the Abbey.

THE MASTER BUILDERS AND THE LONDON SCHOOL BOARD.

A MEETING of master builders was held on Monday afternoon "to protest against the manner in which the School Board for London deals with their work, bills, and payments."

Mr. Dove was in the chair, and other firms represented included Atherton and Latta, Dearing and Son, Charteris, Cubitt, Seeley, Lathey, &c. It was stated that the meeting had been called because of the builders being so badly treated that some of them had refused to do further work for the London School Board under present arrangements. They not only had their bills shamefully cut down, but had to threaten legal proceedings before they could get their money. One builder stated, as an instance, that the Board at one time owed him nearly £500, and, in response to an application for a settlement, a cheque was sent for £3 17s. 5d The system adopted by the School Board for their repairing accounts and schedule prices was declared to be one that was worrying to the builder, and also one that must necessitate an increased staff of clerks at the central offices of the Board to check the bills. The builders had to insert every item of repairs, such as "one screw ½d.," "three yards of cord 2d.," and so on, leading to extra cost in the builders' offices as well. The system had become so intolerable, and the periods of payment so extended, that the builders had tacitly agreed not to work under present arrangements. Mr. Cook, a member of the School Board, sent a promise to the meeting to introduce a deputation to the School Board, and this offer was accepted, with thanks, the date to be fixed later on.

HOT-WATER ENGINEERING.—V.

SUPPLY OF HOT WATER FOR BATHS AND DOMESTIC PURPOSES.

THE TANK SYSTEM (*concluded*).

THERE remain two more essential features in the tank system to notice—viz., the cold-supply and the expansion, or steam escape, services. There used to be an idea that the cold-supply service from the house cistern to the hot-water tank had necessarily to have an intermediate cistern placed beside the tank, as Fig. 16. The real object sought to be attained by

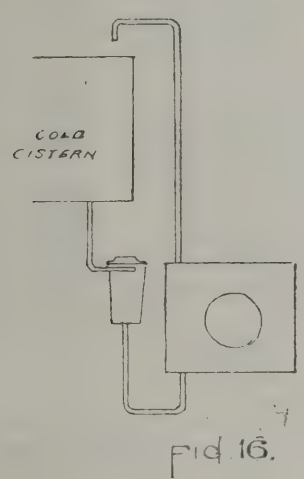
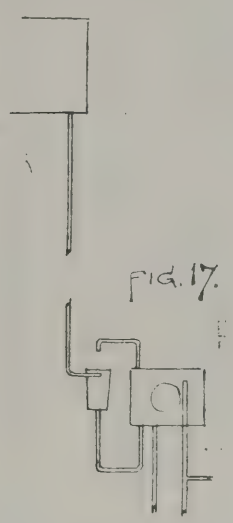


FIG 16.

this arrangement is obscure, if even there was one. It certainly introduces a great drawback in the use of the ball valve, as these articles, even the best of them, are very far from being perfect; and they are perpetually getting stuck or irregular in their action. The necessity of having a ball valve with a short arm that would work in these small cisterns, greatly aggravates the matter, as the length of the arm which has the ball on the end has greatly to do with the success of nearly all these articles. In addition to this, the small cistern had to have an overflow service fitted as usual.

If the tank is up anywhere near the house cistern, there is no occasion whatever to use this intermediate cistern, and the service should be brought down direct, as Fig. 12, the only special features being the stop-cock and the dip, or "siphon," as it is wrongly called, in the pipe near the tank. If, however, the tank was a long way, say 20ft. to 30ft., below the house cistern, by reason of hot water not being required in the upper part of the house, then an intermediate supply cistern could be used; but the only gain effected is that it makes it unnecessary for the expansion pipe from the top of the tank to extend up to the house cistern, as it would have to do if no intermediate cistern was used. Fig. 17 shows an apparatus in which the supply cistern might be used to save the erection of the high expansion pipe.

It is very important that the stop-cock in the supply pipe be of full size. If it is a 1in. cock, it should have a "full way"—that is, the passage through it should be of 1in. diameter


FIG. 17.

from end to end; these are a little more costly than the ordinary cocks, but decidedly necessary. If an inch cock of the common character were used, the passage through it would hardly be ¾in. clear, and this choking of the service would have the same effect as reducing the pipe to ¾in. all through, so that it is an unnecessary expense putting a 1in. pipe in if the tap has only a ¾in. way through it. The cold supply-pipe should never be less than ¾in., even in small works, as the size of this pipe controls the flow of hot water from the taps when they are opened. The stop-cock should be labelled, and it should have a loose key to be kept in charge of someone who will only permit authorised workmen to use it.

The object of the dip in the cold-supply pipe, the part that dips down below the tank a little way, is to prevent hot water finding its way up this pipe into the house cistern, where it would be very unnecessary, particularly in the warm weather, when water cannot be got cold enough.

In experimenting with a glass apparatus, it will be found that a sluggish, but nevertheless certain and permanent, circulation will set in up a *single* vertical pipe, the warm particles of water ascending up the centre and the cooler particles descending down the sides of the pipe. This circulation is not sufficient in its strength to be of any practical service; but it would be found sufficient to bring about ill results if it was allowed to act in the cold supply service from the house cistern. It will be seen that this circulation is too feeble to overcome obstacles, and by starting the cold-supply pipe from the tank in a descending direction, the circulation becomes an impossibility, and no hot water finds its way from the tank to the house cistern, although there is a free communication between the two.

The expansion or steam pipe from the top of the tank is provided for the free escape of steam when it is generated, and it also allows of the slight rise and fall of the water that necessarily takes place as it is heated or cooled, for water expands about one-thirtieth when heated from 45° to boiling-point. There must, of course, be this open expansion-pipe to every description of apparatus; it is, in reality, the safety-pipe, for if this were omitted—the tank being sealed up water-tight—it would be considered highly dangerous, although an accident could not actually occur while the cold-supply pipe was open. The pressure of expansion would relieve itself through this latter direction, and if steam was generated it would escape the same way, although it would create a terrible commotion in so doing. It would not pass out this way until it had gathered sufficient strength to lift and carry the water before it.

This expansion pipe should terminate some 3 or 4 feet above the cold-water cistern, to allow for the water-level in this pipe being higher (due to its expansion) than that in the cold cistern, and it may either turn over the cold-water cistern, as shown, or be carried through the wall or roof. It has to be remembered that if the apparatus overheats, boiling water may be ejected from this pipe. The lower extremity of this pipe should not be allowed to dip down inside the hot-water tank, and on this account it is best to have a flange for the pipe to be screwed into, rather than securing the pipe inside with a backnut. The effect of projecting this pipe through inside the top of the tank is the same as screwing the flow-pipe through the top of the boiler (see Fig. 13), although it is not so noticeable—in fact, it would only result in noises when the water was boiling up in the tank, a thing that does not commonly happen.

From the illustrations, it will be noticed that the tank is shown as being situated below the cold-water cistern. This is, however, not always the case, although, let it be clearly understood, it is decidedly preferable. Sometimes it is decided to place the tank in the roof, alongside the cold-water cistern, this position permitting the tank to be placed out of sight—there can be no other reason—whereas, on the other hand, the disadvantages and ill-results are very great.

In the first place, the tank necessarily loses heat rapidly in this cold situation, a loss that is directly opposed to the object for which the apparatus is erected—viz., to provide heated water from taps, and not to permit the heated water to diffuse and dispose of its heat in useless places. It is, of course, most extraordinary to erect an apparatus which permits of the fire being stoked and fed, with the result that only half the heat imparted to the water issues from the taps; yet how many such are there in use at this day—they can be met with everywhere. A perfect apparatus would be one which conserved every particle of heat that it absorbed from the fire, and only parted with it with the water that issued when the tap was opened; and the writer hopes to show presently that this can be very nearly effected with the most agreeable results at little trouble and expense, and a most decided economy in fuel.

When a tank is placed on a level with the house cistern, the cold-supply pipe has to be connected in the manner already described,

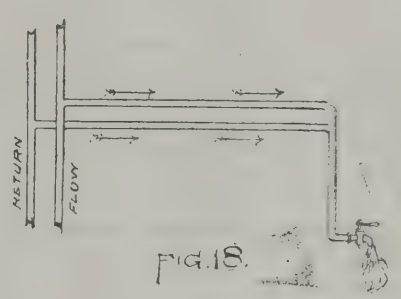


FIG. 18.

although some people consider the stop-cock is not needed, as the cold cistern being so handy it is thought this can be plugged as easily as closing a stop-cock when it is desired to shut off the water. It is not a commendable practice, however.

The particular objection to placing the tank level with the cold-water cistern is that as the day passes the water-level in the cold cistern sinks, which in all probability will cause the tank to run partially empty by evening time. If the demand for water is fairly great, and the cold-water cistern is not of ample size, the water-level may sink below the top of the flow-pipe in the tank, and this would entail the worst possible results.

The last important feature in the Tank system to be noticed is the connection of "returned" draw-off services. It has been mentioned that draw-off services in this system are taken off the flow-pipe at any point between the boiler and the tank. Now, if the nearest point in the flow-pipe is some 30 to 40ft. from the place where the tap is required, and a single pipe is run this distance, an objectionable feature is introduced, in the fact that the water in this pipe being stationary is cold, and has to be drawn off before any hot water can be obtained. When water is drawn the pipe becomes charged with hot water; but this quickly gets cold, so that as a rule the contents of this pipe have to be withdrawn and wasted whenever the tap is applied to. This is no objection at a bath which usually wants some

cold water, which might as well be drawn first as last; but at a lavatory basin it is a great annoyance, as the taps being small, it seems an endless time before hot water is obtained. At the servants' taps it is generally considered an annoyance, although of a less pronounced character. The remedy for this is to return the draw-off service, so that the water will circulate within it; but here an objection is introduced which is not as generally understood as it might be.

It must first be explained that a proper knowledge of what happens when a tap is opened is not possessed by every one, and if a person were asked from which direction the water came that flowed out of a tap—whether down from the tank or up from the boiler—few could speak with certainty; and the least would guess that half proceeds each way, as is actually the case. Now, if we take a draw-off service from the flow, and return it into the return, as Fig. 18, which is the customary way of doing it, the water will circulate in the service very well; but when we open the tap the water will proceed as indicated by the arrows, so that nearly as much cold water will be obtained as hot. The return of this service into the main return opens up a direct passage from the cold-water cistern to the tap, a very undesirable end.

There is no better way of returning the draw-off service than this, but the very bad feature just explained can be greatly minimised by using a small sized pipe for the return portion of the service, as we do not need a rapid circulation here, all that is needed being sufficient movement to keep the water from being absolutely stationary and getting cold. A very sluggish circulation is sufficient.

Sometimes a remedy is effected by putting a stop-back valve in this draw-off return, this valve permitting water to pass it one way only. Sometimes it can be conveniently arranged for the flow-pipe to be taken by a longer route, so as to come near all taps (the return pipe being taken by the most direct route between the tank and boiler.

The next paper will deal with the more modern cylinder system.

PRICES.—VIII.*

[It will have to be borne in mind that the prices given do not include any provision for an increase in the cost of labour, should the men now on strike obtain the 10d. per hour; and contracts taken pending the strike should be entered into with caution, and ought to have a clause allowing an increase if the 10d. is paid, though it scarcely seems probable that it will be.]

VESTRY *charges for opening roads, connecting to sewers, making good, &c.—(Continued.)*

WESTMINSTER (ST. JAMES'S, PICCADILLY).

The charges for connections to sewers are:—

	£	s.	d.
For a 6in. connection	0	14	6
Ditto 9in. ditto	0	18	6
Ditto 12in. ditto	1	5	0

Builders lay pipes in the roadway between the connection to sewer and house.

The charges for making good paving &c., are as follows:—

	£	s.	d.
Wood paving ..... per yard super.	0	12	6
Asphalte ..... ditto	0	18	6
Macadam ..... ditto	0	2	6
Granite pitching ..... ditto	0	2	6
York stone (relay) ..... ditto	0	1	6
Ditto new ..... ditto	0	9	0
Kerb relaid ..... per foot run	0	0	3

WOOLWICH.

There is no schedule here, but the actual cost is charged in all cases.

CITY OF LONDON (COMMISSIONER OF SEWERS, BASINGHALL-STREET).

No scale of charges exists, but each matter is treated separately, and charged on the cost.

MASON.

A list of the various stones not treated in detail here will be given at the end of this trade for reference.

BATH STONE (INCLUDING PROFIT).

	£	s.	d.
In blocks of the usual average..... per foot cube	0	1	10
Ditto including waste and cartage within four miles of depot ..... ditto	0	2	5
Ditto including hoisting, setting, and cleaning down ..... ditto	0	3	0
Add for scantling lengths..... per foot cube	0	0	4
Add for hoisting over 30ft. every 10ft. ..... ditto	0	0	2
Half sawing ..... per foot super	0	0	1½
Whole sawing ..... ditto	0	0	2
Plain work to beds and joints ..... ditto	0	0	4
Ditto ditto sunk ditto ... ditto	0	0	7
Ditto ditto ditto rebated ditto	0	0	9
Ditto circular ..... ditto	0	1	0
Plain face ..... ditto	0	0	5
Ditto circular ..... ditto	0	0	10
Ditto circular circular..... ditto	0	1	3
Sunk face ..... ditto	0	0	10
Ditto stopped..... ditto	0	1	0
Ditto short lengths ..... ditto	0	1	1
Ditto stopped both ends ..... ditto	0	1	2
Ditto ditto in short lengths..... ditto	0	1	3
Ditto circular ..... ditto	0	1	3
Ditto ditto rebated ..... ditto	0	1	4
Ditto ditto ditto stopped one end ..... ditto	0	1	5
Ditto ditto ditto short lengths ditto	0	1	6
Ditto ditto ditto both ends ... ditto	0	1	6
Moulded work ..... ditto	0	1	3
Ditto in short lengths ..... ditto	0	1	5
Ditto stopped one end ..... ditto	0	1	7
Ditto ditto short lengths ..... ditto	0	1	9
Ditto stopped both ends ..... ditto	0	1	11
Ditto ditto short lengths ..... ditto	0	2	1
Moulded work circular ..... ditto	0	1	6
Ditto ditto short lengths ..... ditto	0	1	8
Ditto ditto stopped one end ... ditto	0	1	8
Ditto ditto in short lengths ... ditto	0	1	10
Ditto ditto stopped both ends ditto	0	2	0
Ditto ditto sunk ..... ditto	0	1	8
Ditto ditto in short lengths ... ditto	0	1	10
Ditto ditto stopped one end ... ditto	0	1	10
Ditto ditto ditto both ends ditto	0	2	0
Ditto circular circular as to mouldings in circular-headed niches, circular on plan ..... ditto	0	2	0
2in. plain margin ..... per foot run	0	0	1
Ditto in short lengths ..... ditto	0	0	1½
Ditto circular..... ditto	0	0	1½
Ditto ditto ..... ditto	0	0	2
Ditto sunk ..... ditto	0	0	1½
Ditto ditto short lengths ..... ditto	0	0	2
Ditto ditto circular ..... ditto	0	0	2
Ditto ditto ditto short lengths ... ditto	0	0	2½
3in. splay or weathering ..... ditto	0	0	2
Ditto ditto stopped one end ..... ditto	0	0	2½
Throat or groove ..... ditto	0	0	0½
Moulding 3in. girth ..... ditto	0	0	4
Ditto in short lengths..... ditto	0	0	5
Ditto circular..... ditto	0	0	5
Ditto ditto in short lengths..... ditto	0	0	6
Groove for condensation..... ditto	0	0	1
Rebate for iron casements ..... ditto	0	0	1½
Flutes to columns not exceeding 1½in. diameter ..... ditto	0	0	2
Rustic not exceeding 2in. deep..... ditto	0	0	2½
Reeds not exceeding ½in. deep ... ditto	0	0	1
Ditto ditto ⅝in ditto ... ditto	0	0	1½
Ovolo or ogee edge ¾in. wide ..... ditto	0	0	2
Staff head ditto 1in. ditto ..... ditto	0	0	2
Joggle joints to 3in. in cement ... ditto	0	0	6
Ditto ditto he and she ditto ... ditto	0	0	8
Ditto ditto to 4in. ditto ... ditto	0	0	7
Ditto ditto he and she ditto ... ditto	0	0	9
Ditto ditto to 5in. ditto ... ditto	0	0	8
Ditto ditto he and she ditto ... ditto	0	0	10
Ditto ditto to 6in. ditto ... ditto	0	0	9
Ditto ditto he and she ditto ... ditto	0	0	11
Where the plain joggles are run with lead, in-including holes to run, per foot extra, add for 3 and 4in.	0	0	3
Ditto for 5 and 6	0	0	5
Ashlar 4in. on bed, set complete, and including cleaning down ..... per foot sup.	0	1	6
Add per inch in thickness ..... ditto	0	0	4
Add for bond stones if the measurement is given beyond face measure in cube, at per foot cube	0	3	9
(If to be allowed on face measure, this must be spread over the actual measurement, having arrived at the quantity as specified.)			
1in. slabs rubbed in plain chimneypiece jambs, friezes, and shelves, and fixed with cramps, &c., complete..... per foot super	0	1	0
1½in. ditto ..... ditto	0	1	1
1¾in. ditto ..... ditto	0	1	2
2in. ditto ..... ditto	0	1	4
2½ ditto..... ditto	0	1	6
3in. ditto ..... ditto	0	1	8
Old chimneypieces squared and re-rubbed ..... each	0	0	6
Taking down and resetting ditto (plain) ..... ditto	0	3	6
Ditto (boxed)..... ditto	0	5	0
Allow for boxing chimneypieces beyond the prices given at per foot run of jamb or frieze.	0	0	4
Spandrel steps, 9 by 6, rubbed and birdsmouth rebated..... per foot run	0	1	10
Ditto ..... 10 by 6 ..... ditto	0	2	0
Ditto ..... 11 by 6 ..... ditto	0	2	2
Ditto ..... 12 by 6 ..... ditto	0	2	4
Ditto ..... 13 by 6 ..... ditto	0	2	6
Ditto ..... 9 by 7 ..... ditto	0	2	1
Ditto ..... 10 by 7 ..... ditto	0	2	4
Ditto ..... 11 by 7 ..... ditto	0	2	6
Ditto ..... 12 by 7 ..... ditto	0	2	9
Ditto ..... 13 by 7 ..... ditto	0	3	0
Moulded nosings, including sunk risers, extra per foot run	0	0	6
Return moulded ends ..... each	0	1	0
Rounded corners	0	1	3
Window sills, rubbed, sunk weathered and throated..... 8 by 3 .....per foot run	0	1	0
Ditto ..... 9 by 3½..... ditto	0	1	3
Ditto ..... 10 by 4 ..... ditto	0	1	6
Add for steps to sunk weathering or seatings for jamb..... each	0	0	6
Add for fair ends ..... ditto	0	0	3
Coping, 12 by 2½, feather-edged and rubbed top and sides, and throated ..... per foot run	0	1	2
Ditto ..... 17 by 2½ ..... ditto	0	1	6
Ditto ..... 12 by 2½ parallel ditto ditto	0	1	2
Ditto ..... 13 by 2½ ditto ditto	0	1	4
Ditto ..... 17 by 2½ ditto ditto	0	1	6
Ditto ..... 22 by 2½ ditto ditto	0	2	0
Ditto ..... 18 by 3 ditto ditto	0	2	0
Ditto ..... 22 by 3 ditto ditto	0	2	4
Copings taken up, squared, and reset.....	6d to 8d.		
Curbs, 6 by 6, rubbed three sides...per foot run	0	1	4
Ditto 7 by 6 ditto ditto	0	1	6
Ditto 8 by 6 ditto ditto	0	1	8
Ditto 9 by 6 ditto ditto	0	1	11
Ditto 8 by 4 ditto ditto	0	1	4
Ditto 9 by 4 ditto ditto	0	1	6
Add if rounded on top	3d to 4d.		
Add if rebated	0	0	2
Mitres to moulding, per inch girth ..... each	0	0	1½
Stop ends to ditto ..... ditto	0	0	1½
Letting in ends of saddle bar..... ditto	0	0	2
Holes for balusters..... ditto	0	0	2
Ditto, large ..... ditto	0	0	4
Add for lead to balusters	0	0	3
Ditto, large	0	0	6
Notchings ..... each	0	0	3
Rounded corners on shelf..... ditto	0	0	1½
Ditto reeded or moulded on ditto ..... ditto	0	0	3
Neckings to chimneypieces ..... ditto	0	0	6
Sunk letters, per inch..... ditto	0	0	1½
Slate dowels and cement ..... ditto	0	0	4
Lead plugs and mortises ..... ditto	0	0	4
9in. copper cramps and ditto, and sulphur ditto	0	2	0

PORTLAND STONE—INCLUDING PROFIT.

	£	s.	d.
In blocks of the usual average... per foot cube	0	2	6
Ditto, including waste and cartage within four miles of depot ditto	0	3	0
Ditto, including hoisting, scaffolding, setting, and cleaning down ..... ditto	0	3	10
Ditto, above 6ft. long, add ..... ditto	0	0	3
Hoisting above 30ft. for every 10ft. of additional height ..... ditto	0	0	2
Sawing ..... per foot super.	0	0	8

NOTE.—Where labours on stone are priced, it is necessary where the terms half-sawing or half-beds and joints are not stated, to be perfectly clear that *whole* sawing is intended, or beds and joints, and not *half*.

	£	s.	d.
Plain work to beds and joints ... per foot super.	0	0	10
Ditto ditto, sunk .. ditto	0	1	2
Ditto ditto circular ..... ditto	0	1	6
Plain work rubbed to faces ..... ditto	0	0	11
Ditto circular..... ditto	0	1	5
Ditto circular circular ..... ditto	0	2	0
Ditto sunk and rubbed to faces ditto	0	1	5
Ditto ditto stopped one end..... ditto	0	1	6
Ditto ditto and in short lengths ditto	0	1	9
Ditto ditto stopped both ends ... ditto	0	1	7
Ditto ditto in short lengths ..... ditto	0	1	10
Ditto ditto rebated ..... ditto	0	1	7
Ditto ditto circular ..... ditto	0	1	10
Ditto ditto ditto rebated ..... ditto	0	2	0
Ditto ditto ditto stopped one end ditto	0	2	0
Ditto ditto ditto short lengths ... ditto	0	2	1
Ditto ditto ditto ditto both ends ditto	0	2	2
Moulded work, not including small Gothic mouldings..... ditto	0	2	0
Ditto in short lengths..... ditto	0	2	2
Ditto stopped one end..... ditto	0	2	3
Ditto ditto in short lengths ..... ditto	0	2	5
Ditto ditto both ends ..... ditto	0	2	6
Ditto ditto ditto in short lengths ditto	0	2	8
Ditto in sunk faces ..... ditto	0	2	6
Moulded work circular ..... ditto	0	2	6
Ditto small members ..... ditto	0	2	9
Ditto in short lengths (not small) ditto	0	2	8
Ditto stopped one end .. .. ditto	0	2	8
Ditto ditto ditto short lengths ... ditto	0	3	0
Ditto ditto both ends .... ditto	0	3	0
Ditto ditto ditto short lengths... ditto	0	3	4

NOTE.—The prices for moulded work do not include Gothic or special mouldings, nor do any of the prices cover any but *ordinary* work as defined by a competent surveyors. Without further description it is, however, always necessary in a large "Mason's Bill" to carefully examine the details of labour as shown in the drawings.

	£	s.	d.
Moulded work, circular in sunk faces ..... per foot super.	0	3	0
Ditto ditto ditto short lengths... ditto	0	3	3
Ditto ditto ditto ditto stopped ... ditto	0	3	5
Ditto ditto stopped both ends ... ditto	0	3	7
Tooled stroke to face ..... ditto	0	0	10
Ditto sunk..... ditto	0	1	1
Ditto circular..... ditto	0	1	1
Ditto sunk ditto ..... ditto	0	1	4
Moulded work circular circular . ditto	0	3	6
Throat ..... per foot run	0	0	1
Groove ..... ditto	0	0	2
Ditto for condensation ..... ditto	0	0	3
Rebate for iron casements ..... ditto	0	0	3
2in. plain margin ..... ditto	0	0	2
Ditto in short lengths ..... ditto	0	0	2½
Ditto circular ..... ditto	0	0	3
Ditto in ditto in short lengths ... ditto	0	0	4
2in. sunk margin ..... ditto	0	0	3
Ditto in short lengths..... ditto	0	0	4
Ditto circular..... ditto	0	0	4
Ditto ditto short lengths ..... ditto	0	0	5
Ditto rebated margin ..... ditto	0	0	4
Ditto ditto short lengths .. .. ditto	0	0	5
3in. splay ..... ditto	0	0	4
Ditto stopped one end ..... ditto	0	0	4½
Ditto both ends ..... ditto	0	0	5
Add for short lengths..... ditto	0	0	1
Moulding 3in. girth ..... ditto	0	0	8
Ditto short lengths ..... ditto	0	0	10
Ditto circular..... ditto	0	0	11

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		£	s.	d.
Ditto ditto short lengths	per foot run	0	1	1
Add for stopping each end	ditto	0	0	1
Joggle joints to 3in. and cement	ditto	0	0	8
Ditto ditto 4in. ditto	ditto	0	0	9
Ditto ditto 5in. ditto	ditto	0	0	10
Ditto ditto 6in. ditto	ditto	0	0	10
Add for lead as in Bath stone	ditto			
Joggle joints he and she 3in., and cement	ditto	0	0	10
Ditto ditto 4in. ditto	ditto	0	1	0
Ditto ditto 5in. ditto	ditto	0	1	0
Ditto ditto 6in. ditto	ditto	0	1	1
Flutes to columns, &c., under 1½in.	ditto	0	0	3
Ditto tapering	ditto	0	0	4
Add for every ¼in.	ditto	0	0	1
Rustic under 2in. deep	ditto	0	0	4
Reeds not exceeding ¾in.	ditto	0	0	2
Ditto ditto ¾in.	ditto	0	0	2½
Double-reeded edge ¾in.	ditto	0	0	4
Ovolo or ogee ¾in.	ditto	0	0	4
Inch staff-bead	ditto	0	0	5
Mitres to moulding, per inch	each	0	0	2
Stopped ends	ditto	0	0	2
Seatings for jambs on sills	ditto	0	1	0
Mortises for bars	ditto	0	0	3
Slate dowels, mortises, and cement	ditto	0	0	9
Lead plugs and mortices	ditto	0	0	6
Copper cramps 8in. long, and letting in and running with sulphur, light	each	0	1	6
Ditto heavy	ditto	0	2	6
Letting in coal plates		0	2	6
Holes for pipes per inch of thickness—				
For 2in. pipes		0	0	2
4in. ,,		0	0	3
6in. ,,		0	0	4
Mortises for iron bars and lead		0	0	6
Ditto for newels		0	0	10
Ditto for gate hinges, small	per pair	0	1	6
Ditto large	ditto	0	3	0
Iron dowels and mortises for door frames	each	0	0	6
Notchings in hearths	ditto	0	0	6
Ditto double	ditto	0	0	9
Plain rounded corners to 1, 1½, or 1½ plain edge	ditto	0	0	2
Ditto to moulded ditto	ditto	4d	to	6d.
Neckings to chimneypieces	ditto	0	0	9
Holes in sinks rebated	ditto	0	0	6
Rounded corners to 4in. sink	ditto	0	0	4
Ditto ditto 5in.	ditto	0	0	5
Ditto ditto 6in.	ditto	0	0	6
Sunk letters per inch		0	0	1½
Ashlar 4in. on bed, set and clean down, per foot super		0	2	3
Add per inch in thickness	per foot super.	0	0	7
Add for bond stones the actual contents beyond the face stone at per foot cube		0	6	0
Where the quantity is large and the stone worked advantageously		0	5	0
Landings 3in. thick, sawn both sides and set complete (cut and pin to add)	per foot super.	0	2	4
Ditto 4in. ditto	ditto	0	3	0
Ditto 5in. ditto	ditto	0	3	6
Ditto 6in. ditto	ditto	0	4	0
If exceeding the average of 30ft. super. in one stone, add	ditto	0	0	3
Landings 3in. thick rubbed one side	ditto	0	2	6
Ditto 4in. ditto ditto	ditto	0	3	2
Ditto 5in. ditto ditto	ditto	0	3	8
Ditto 6in. ditto ditto	ditto	0	4	2
Ditto 3in. ditto two sides	ditto	0	2	8
Ditto 4in. ditto ditto	ditto	0	3	4
Ditto 5in. ditto ditto	ditto	0	3	10
Ditto 6in. ditto ditto	ditto	0	4	4
(In large quantities the prices of these landings may be reduced.)				
Slabs 1in. thick, rubbed, in jambs, shelves, and friezes of chimneypieces, fixed complete	per foot super.	0	1	6
Ditto 1¼in.	ditto	0	1	7
Ditto 1½in.	ditto	0	1	8
Ditto 2in.	ditto	0	1	10
Ditto 2½in.	ditto	0	2	0
Ditto 3in.	ditto	0	2	2
Paving 1½in. thick, sawn one side, and laid in straight courses in mortar, and pointed in mortar	ditto	0	1	0
Ditto 2in. ditto	ditto	0	1	2
Ditto 2½in. ditto	ditto	0	1	4
Ditto 3in. ditto	ditto	0	1	6
Add if sawn two sides	ditto	0	0	4
Add if rubbed	ditto	0	0	2½
Add if in cement	ditto	0	0	2
Old paving taken up, squared, and relaid	ditto	0	0	3
Hearths 1½in. thick, sawn	ditto	0	1	1
Ditto 2in. ditto ditto	ditto	0	1	2
Ditto 2½in. ditto ditto	ditto	0	1	4
Ditto 3in. ditto ditto	ditto	0	1	6
Add if rubbed	ditto	0	0	2½
Sinks 5in. thick	ditto	0	3	0
Ditto 6in. ditto	ditto	0	3	6
Ditto 7in. ditto	ditto	0	4	0
Ditto 8in. ditto	ditto	0	4	6
Steps and thresholds 9 by 6 rubbed and bedded in cement	per foot run	0	2	6
Ditto ditto 10 by 6	ditto	0	2	9
Ditto ditto 11 by 6	ditto	0	3	0
Ditto ditto 12 by 6	ditto	0	3	3
Ditto ditto 10 by 7	ditto	0	3	0
Ditto ditto 11 by 7	ditto	0	3	3
Ditto ditto 12 by 7	ditto	0	3	6
Ditto ditto 13 by 7	ditto	0	3	9
Add for back joint	ditto	0	0	2
Ditto for moulded nosing and sunk riser	ditto	0	0	9
Spandril steps 9 by 6 rubbed and bird's-mouth jointed, bedded in cement	ditto	0	2	6
Ditto ditto 10 by 6	ditto	0	2	8
Ditto ditto 11 by 6	ditto	0	2	10
Ditto ditto 12 by 6	ditto	0	3	0
Ditto ditto 10 by 7	ditto	0	3	0
Ditto ditto 11 by 7	ditto	0	3	4
Ditto ditto 12 by 7	ditto	0	3	6
Ditto ditto 13 by 7	ditto	0	3	9

		£	s.	d.
Back joint		0	0	2
Moulded nosing and sunk riser		0	0	9
Plain ends of steps		0	0	6
Moulded ditto		0	1	0
Ditto ditto circular		1s.	6d.	to 2s.
Rounded corners, quadrant		0	1	0
Ditto ends, semi		0	2	6
Winders, square and rubbed, fixed complete in cement	per foot cube	0	6	6
Ditto ditto, sunk on soffit		0	7	6
Window sills, rubbed, weathered and throated 8 by 3	per foot run	0	1	6
Ditto 8 by 3½	ditto	0	1	9
Ditto 9 by 4	ditto	0	2	4
Ditto 10 by 4	ditto	0	2	8
Ditto 11 by 4	ditto	0	2	10
Add for sinking		0	0	3
(See *ante* for stops to weathering.)				
Copings, rubbed top and two edges, throated both edges, and set in cement 12 by 2½	per foot run	0	1	8
Ditto 17 by 2½	ditto	0	2	4
Ditto 21 by 2½	ditto	0	3	0
Ditto 12 by 3	ditto	0	2	0
Ditto 17 by 3	ditto	0	2	7
Ditto 20 by 3	ditto	0	3	0
Ditto, taken up, squared, and reset		0	0	6
If feather-edged, deduct		0	0	2
Curbs, 6 by 6, rubbed and set	per foot run	0	2	0
Ditto 7 by 6 ditto	ditto	0	2	4
Ditto 8 by 6 ditto	ditto	0	2	6
Ditto 9 by 4 ditto	ditto	0	2	0
Ditto 9 by 6 ditto	ditto	0	2	6
Templates, 9 by 9 by 3, rubbed and set	each	0	1	0
Ditto 9 by 14 by 3 ditto	ditto	0	1	6
Ditto 9 by 18 by 3 ditto	ditto	0	1	9
Ditto 9 by 9 by 4 ditto	ditto	0	1	6
Ditto 9 by 14 by 4 ditto	ditto	0	1	10
Ditto 9 by 9 by 6 ditto	ditto	0	2	6
Ditto 9 by 14 by 6 ditto	ditto	0	2	10
Ditto 14 by 14 by 6 ditto	ditto	0	4	0
Add for cutting and fixing in old wall, average sizes		0	1	0
Ditto if in cement wall		0	2	0
CHILMARK AND WARDOUR STONE.				
Random blocks, per foot cube		0	1	11
Ditto delivered within four miles of the depot in full loads		0	2	3
Ditto, including scaffolding, hoisting, setting, and cleaning down		0	3	2
Add for stones over 6ft. long		0	0	3
Add for hoisting, &c., over 30ft. high, for every 10ft:		0	0	2
Labour on the hard bed :—				
Half-sawing only	per foot super.	0	0	3½
Plain work to beds and joints	ditto	0	0	11
Ditto ditto, sunk	ditto	0	1	5
Ditto ditto to rubbed faces	ditto	0	1	0
Ditto sunk	ditto	0	1	6
Ditto circular	ditto	0	1	9
Ditto ditto sunk	ditto	0	2	2
Ditto ditto ditto stopped	ditto	0	2	4
Moulded work	ditto	0	2	2
Ditto short lengths	ditto	0	2	5
Ditto circular	ditto	0	2	9
Ditto ditto sunk	ditto	0	3	0
Ditto ditto stopped	ditto	0	3	0
Ditto ditto circular	ditto	0	3	6
Moulding 3in. girth	per foot run	0	0	8
Do. short lengths	ditto	0	0	10
Ditto circular	ditto	0	0	11
Ditto ditto short lengths	ditto	0	1	1
(Other labours may be taken at the same as Portland stone.)				
(Labours on soft bed. These prices will not apply to any of the stones having veins in.)				
Half sawing	per foot super.	0	0	3
Plain work to beds and joints	ditto	0	0	7
Ditto to rubbed faces	ditto	0	0	10
Ditto sunk ditto	ditto	0	1	0
Ditto circular on plan	ditto	0	1	2
Ditto ditto sunk	ditto	0	1	6
Ditto ditto stopped	ditto	0	1	8
Moulded work	ditto	0	1	6
Ditto short lengths	ditto	0	1	9
Ditto circular	ditto	0	1	11
Ditto ditto sunk	ditto	0	2	1
Ditto ditto stopped	ditto	0	2	2
Ditto ditto circular	ditto	0	2	9
Moulding 3in. girth	per foot run	0	0	6
Ditto short length	ditto	0	0	8
Ditto circular	ditto	0	0	9
Ditto ditto short lengths	ditto	0	0	11
2in. sawn paving	per foot super.	0	1	0
2½in. ditto	ditto	0	1	2
3in. ditto landings	ditto	0	1	9
3½in. ditto	ditto	0	1	11
4in. ditto	ditto	0	2	3
5in. ditto	ditto	0	2	9
6in. ditto	ditto	0	3	0
Exceeding 12ft in a stone add		0	0	1
Ditto 18ft. ditto		0	0	1½
Ditto 20ft. ditto		0	0	2
Ditto 30ft. ditto		0	0	3
Ditto 36in. ditto		0	0	4
Add for rubbing		0	0	2
Window sills, rubbed, weathered and throated in hard stone— 8 by 3	per foot run	0	1	4
8 by 3½	ditto	0	1	6
8 by 4	ditto	0	1	9
9 by 3	ditto	0	1	6
9 by 3½	ditto	0	1	9
9 by 4	ditto	0	1	11
10 by 3½	ditto	0	2	0
10 by 4	ditto	0	2	3
9 by 6	ditto	0	3	0
10 by 6	ditto	0	3	3
Curbs 6 by 6 rubbed and set	ditto	0	1	9
7 by 6	ditto	0	2	0
8 by 6	ditto	0	2	3
9 by 6	ditto	0	2	6
8 by 4	ditto	0	1	9
9 by 4	ditto	0	1	10
10 by 4	ditto	0	2	0
Add for chamfer	ditto	0	0	2½
Ditto rounded top	ditto	0	0	4

ARCHITECTURE OF THE RENAISSANCE IN ENGLAND.

THE subjects represented in the second part of Messrs. Gotch and Brown's folio, just issued by Mr. Batsford* to subscribers, are in several instances taken from less known buildings than most of those grouped in the first part, which we noticed early in the year, at the time we gave a view of Park Hall, Oswestry, as a specimen plate.† This being the case, the illustrations are, if anything, more interesting. The descriptive text is certainly more copious, and the plans and detail sketches in the letterpress are more numerous than before. Bradfield, near Cullompton, a sadly mutilated mansion has a grand drawing-room, with much rich woodwork and a beautiful angle porch in it, besides a Jesse Tree chimneypiece. This apartment furnishes the first plate. The next is of the Guildhall, Exeter, with its projecting Council Chamber, erected in 1593. The Buttermarket House, Dartmouth, and another interior, with an angle lobby doorway from "A house in the West of England" follow. The first really big subject is Montacute House, near Yeovil, one of the great houses of Elizabeth's time, with its garden, pavilions, terrace walls, and "temples," built by Sir Edward Phelips, Speaker of the House of Commons and Master of the Rolls. Four plates are well devoted to this masterpiece, and they include a good sheet of details, besides a ground plan in the text. Lower Walterstone, Dorsetshire, a smaller house near Puddleton, far away from the roar of trains, has some admirable and suggestive points about it, though the whole composition, in the words of the author, may be described as a curious medley. It is undeniably piquant, and the entrance front is a "fetching" piece of work. Longford Castle, in Wiltshire, is better known, with its triangular plan, of which John Thorpe has a copy in his celebrated book of drawings at Sir John Soane's museum in Lincoln's Inn Fields. In execution the house was somewhat altered, and the drawings given by Mr. Gotch, aided by his photograph, display this singular building as it was intended, and also how it actually was executed. Burford Priory, Oxfordshire, is represented by a similar complement of illustrations, though a plan of the chapel to this house, and a large photograph of its western gable would have added greatly to the completeness of the book. As it is, the isolated details of the windows, without the plan and general section, are much lessened in value. The tribune at the entry end of the chapel, too, deserved illustration. In a few years, at the most, the whole fabric must fall into a mass of débris. It is already a ruin. The tombs from Burford and Braybrook churches are worth the space so well devoted to them, and Wroxton Abbey door is shown. The hall and gallery front over it would have been, if anything, more welcome because it is a specimen of fine woodwork. Bolsover Castle, in Derbyshire, is greatly admired by Mr. Gotch, who has devoted much space and energy in illustrating it with two good plans and some sketches of the fireplaces, which are unquestionably remarkable and unusual, like the vaultings in the hall and "Pillar-room." The exterior of the house is ungainly and coarse, particularly the work which Huntingdon Smithson, the architect, put up for Sir William Cavendish about 1629. Barlborough Hall, also in the same county, and erected at the end of the 16th century, concludes the part before us. The plan is of the same type as Bolsover, and may have influenced the design of that house, as Barlborough had already been built 30 years when Bolsover was begun. The four boldly-projecting bay windows, carried up in the form of turrets near the angles of the house, give the building an imposing outline and a character all its own. The quaint angular window at the rear of the house looks better undoubtedly on plan than in elevation, and reminds one of the Tudor-built oriel at Hengrave Hall, Suffolk, the ancient home of the Gages. We can speak warmly of this book, for the plates are well done, and so is the letterpress. The marginal studies are an improvement upon those given before, while the plans are more frequent. The sketches seem somehow a trifle hard and coarse, and wanting in "go." Mr. Batsford is clearly determined to make the work a success, and we think he will do it.

* Architecture of the Renaissance in England. By J. ALFRED GOTCH, F.S.A., and W. TALBOT BROWN, A.R.I.B.A., Part 2. London: B. T. Batsford, 52, High Holborn, W.C.

† See BUILDING NEWS, Feb. 27, 1891.

WAYSIDE NOTES.

"WHO shall decide, when doctors disagree?" The "doctors" consulted as to the future of burials and monuments at Westminster Abbey have disagreed. Who shall now decide? Opinions being so exactly divided on the main point—the site of the proposed *campo santo*—we have, practically, a deadlock. It would seem necessary to appoint a further commission to inquire into the report of the present one!

Though lacking in decisiveness, the Report is yet of much interest, and of undoubted value and usefulness. The Commissioners have most carefully sifted every grain of evidence, direct and indirect, bearing upon the subject of their inquiry. If wanting in unanimity, with regard to the proposed building in the rear of the great cloisters, they have yet been one in denouncing spurious schemes, such as that for the erection of chapels to the north of the nave, and that for spoiling the present fine effect of the chapter-house. It is something to be rid of the chance of these latter proposals being carried into effect. An astonishing number of persons seemed ready with plans for this and that; but all, more or less, would have been detrimental to the present old buildings. There can be no two ways of thinking as to the satisfactory nature of the process of selection by which the commissioners reduced the mass of proposals to the two recommended in the report. These we must now consider for ourselves. Opinions may be divided; but I rather fancy that the architectural profession will mainly accord with the Refectory site, not merely because Mr. Waterhouse has recommended this site, but because it seems to recommend itself, on several grounds. Chief among the advantages that occur to one are that it will be in a retired position, where there will be no chance of discord with the Abbey buildings; that it will not interfere with the chapter-house; and that access will be given to old portions of the Abbey without any material alteration of existing features. These are no slight advantages in a matter where the preservation of the old work and the old effect have to be considered before all else.

In the Report the Commissioners allude to the danger from fire that the Abbey suffers from the presence of the buildings fronting Old Palace-yard. If there be real danger, the clearing away of some of the offending tenements would be a good riddance. The laying bare of the external architecture of the chapter-house might also result in some additional effect. This sort of thing, however, is dangerous. Many a building would lose in effect if cleared of the old houses, &c., that crowd in about it, and partially conceal it from view. Certain it is that just at the present time the peep of the Westminster Chapter-house from among the houses and trees of Poet's Corner is charmingly picturesque, where it might be plainly prosaic if it stood naked and bare, as it would do if the block of buildings were cleared away.

When a building stands free, on a level site, and unsurrounded with trees or shrubs, it always reminds me of a model in a glass case. The Natural History Museum, fine as it is, invariably gives me this effect. No trial is so great for any building. Standing alone on a level base, unconcealed in the smallest degree by the ordinary accessories that assist an architectural composition—trees, irregular site, backgrounds, and harmonious neighbouring buildings—every line and detail is open to criticism. Nothing is so hideous as an ill-designed building standing on ground of prairie-like monotony. Site and surroundings go for a very great deal in architecture. What makes the chief glory of the ruin. Not so much the broken angles and softened lines, everywhere apparent, as the trees that partially conceal masses of masonry and the ivy that clings to the walls in rich clusters, climbs the piers, wreaths the columns, and throws its delicate tendrils up slender shafts—dark against light—and into hollow mouldings—light against dark.

If you get more than three hundred and fifty-five letters and two thousand nine hundred and forty-six post-cards—including thin ones—pointing out that "Goth" does not know what he is writing about, or he would not have confounded William Burges, architect, with E. W. Godwin, architect, then I shall consider it incumbent upon me to lessen my contributions to "Wayside Notes." Any fewer, I shall take as meant solely as a kindly correction at the hands of well-intentioned readers. Anyhow, I apologise to all for the slip of the pen occasioned by rather hurried writing of last week's "Notes."

I thought I would have a look at the drawings for a competition wherein one competitor had secured two premiums; so being in the neighbourhood of Islington one day last week, I went to the vestry-hall and examined the plans. It occurred to me that the assessor could not have required much time to pick out the three first designs, however long he may have taken to place them in order of merit. Also, it struck me very forcibly that many competitors thought the sun was going to warm the water in their baths through the glass in the roofs! Others seemed to have a vague notion that some sort of boiler might be required by an odd chance; but "boiler," "stokery," "coals," &c., written on the plans, evidenced, apparently, the whole of the attention bestowed on the matter. Competing architects will never win competitions for public baths unless they go fully and carefully into engineering details of heating, and draw them out on the plans as clearly as did Messrs. Spaulding and Cross in this Islington competition.

The hybrid committee of the House of Commons have thrown out the Metropolis Water Supply Bill, with the inquiry into which they were charged. So also with regard to the London Water Commission Bill of the Corporation, and two minor measures dealing with the water question were not proceeded with. This has the appearance of a very wholesale condemnation of attempts to deal with a much-vexed question. The hybrid committee, however, have taken the best course. Neither of the Bills put before them grasped the subject of London water supply. Something really comprehensive has yet to be produced. Meanwhile, Sir Mathew White Ridley, the chairman of the committee, will issue a special report. This should prove a most interesting and instructive document, tending not a little to show the right way for future endeavours.

The Central London Railway Bill has been more fortunate than others of a similar kind that have lately been before Parliament. It has passed through the Committee of the House of Lords, and, all well, seems destined to ultimately lead to the construction of the proposed line.

Some time ago I alluded to the Public Health (London) Bill as probably about to become law. I mentioned it then as emanating from the County Council, and containing a good deal of "grandmotherly" legislation. This Bill has now passed, and we shall await with interest its result on the public health. It was well overhauled in Parliament, and some new clauses added. If details in the matter of sanitary supervision could insure hygienic perfection, this new measure should bring about a most desirable state of things.

In *A.A. Notes* for July, Mr. F. M. Simpson, writing on "Impressionism in Architecture," says that the architectural work of the present day may be divided under three heads:—(1) Architectural work that is not architectural at all; (2) that is archæological architecture; (3) that is impressionist or progressive architecture. This is stating the matter pretty clearly, but the writer scarcely uses the term "impressionist" in its proper sense, either in this classification, or throughout the whole article. Nevertheless, it is brightly written, and helps to make the present number of the *Notes* interesting and readable. Whether the progressive architecture of to-day is rightly or wrongly termed "impressionist," Mr. Simpson is correct in the deductions he makes, save for some few details that may after all be merely matters of taste.

Mr. E. L. Garbett is as emphatic about the payment of architects by commission as ever. In a short but interesting communication to this week's *English Mechanic* on the ventilation of large buildings, he invites co-operation in the adoption of a wonderful ventilating exit he has invented, as follows:—"The first brickmaker in any county who likes to make the forms C, D, E, F, in patent 46 of 1884, may have the monopoly in that county if he applies to me, 26, Claremont-square, N.; but he must keep clear of the Devil's architects. Colonel North made a huge mistake in the fancy he was 'dealing with a gentleman.' He should have known, as Lord Chief Justice Kenyon announced a century ago, designing for a 'per-centage on the outlay' is no gentleman's idea, but a highwayman's, or, in short, Satan, the Devil's, idea. Long ere Colonel North's building, or any around, has done half the mischief it has to do, he will be a bit wiser." GOTH.

COMPETITIONS.

KENDAL.—On Monday in last week the committee decided as to the plans to be adopted for new Sunday-schools, Zion Chapel, Kendal. Six sets of designs were sent in under motto, each possessing undoubted merit. A committee of men considered to be the most practical in the congregation was appointed to examine the plans minutely, and after three prolonged sittings, occupying many hours, they ultimately decided by four to two that the design sent in under motto "Light and Air" should be placed first in order of merit, and that it should be recommended for adoption, the design under motto "Be his the palm who merits it" receiving two votes. This was subject, however, to a further decision of another committee consisting of 24 members, who, after a short deliberation, reversed by ten votes to seven the decision of the committee whom they had appointed to adjudicate upon the plans, and upsetting in a fractional part of the time the laborious work of the first committee. The general plan was very much similar in both designs, the ground floor being left for a school-room without obstruction; the first floor being divided into class-rooms on three sides, with open space in centre. One of the conditions was that the school-room should be lofty and well lighted. The premiated design shows this school-room 8ft. 6in. high. The design placed second shows the school-room 12ft. high. The school-room averages about 54ft. by 47ft. inside. The design bearing the motto "Be his the palm who merits it" is by Mr. Stephen Shaw, F.R.I.B.A., who will carry out the building. The design awarded second prize, and bearing the motto "Light and Airy," is by Mr. John Stalker, M.S.A., who received ten guineas. Both architects are practising in Kendal.

CHIPS.

The foundation-stone of a new church, to be dedicated to St. Peter, was laid at Bentley, near Doncaster, on Monday, by Lady Mary Cooke. The church will be in the Early Decorated style. It will consist of nave and chancel, with north and south arcade. There will be porches on the north side and at the south-west angle; and from the latter will spring a tower and spire, rising to a height of 130ft. The church will accommodate 400 hearers. The interior fittings will be of teak. The cost, exclusive of site, will be between £6,000 and £7,000.

The death is announced of Mr. Robert Roberts, of Lowry Bank, Seacombe, a gentleman who has been a prominent figure among the Welshmen in Liverpool for several years. Mr. Roberts, who was a native of Carnarvonshire, was in business in Liverpool as a general contractor. He was also an owner of a considerable amount of property, and had an estate at Colwyn Bay. The deceased, who was 52 years of age, leaves a widow and one son.

Two pictures of the Sienese School have been added to the National Gallery. That numbered 1330, and named "The Transfiguration," by Duccio de Buoninsignia, *c.* 1263, is a piece of six figures, including our Saviour and five disciples, on a gold background. No. 1331, "The Virgin and Child surrounded by Cherubim," is by Bernardino Fungai, born *c.* 1460, died 1516.

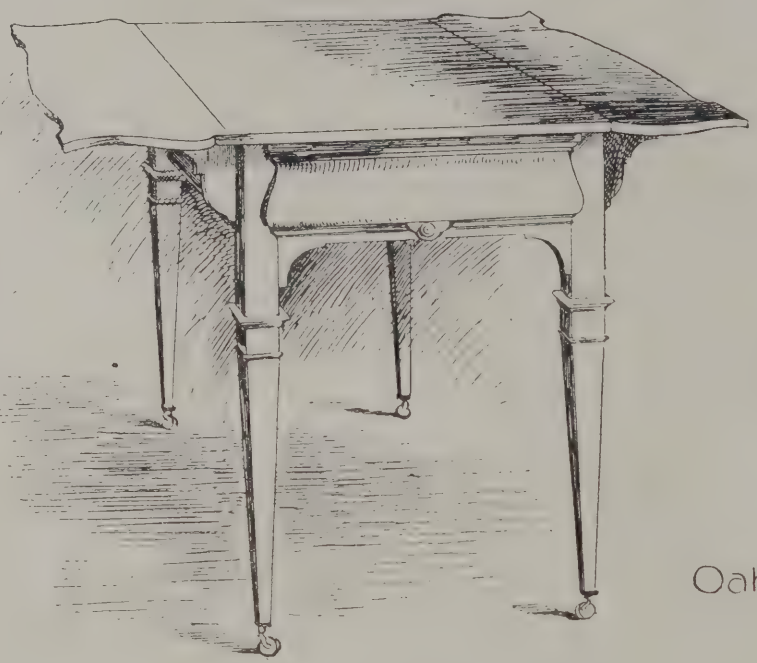
The new Board Schools, Carlisle, are being warmed and ventilated throughout by means of Shorland's patent warm-air ventilating Manchester grates and stoves, the same being supplied by Mr. E. H. Shorland, of Manchester.

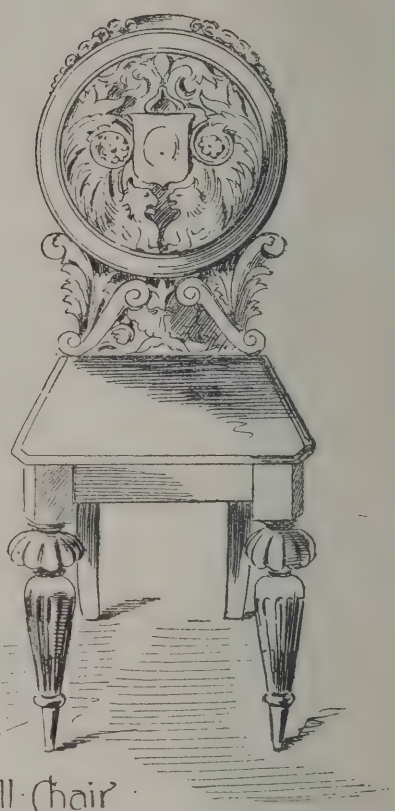
At Tuesday's meeting of the London County Council, the recommendation of a committee that Mr. Walter Emden's plans for a new theatre on the site of Waterloo House should be approved was rejected, and the superintending architect to the Council, Mr. T. Blashill, was instructed to report on the objections to the site of the proposed theatre.

Furniture and Carving

Sketches from The Carpenter's Hall

Mahogany Table





Oak Hall Chair

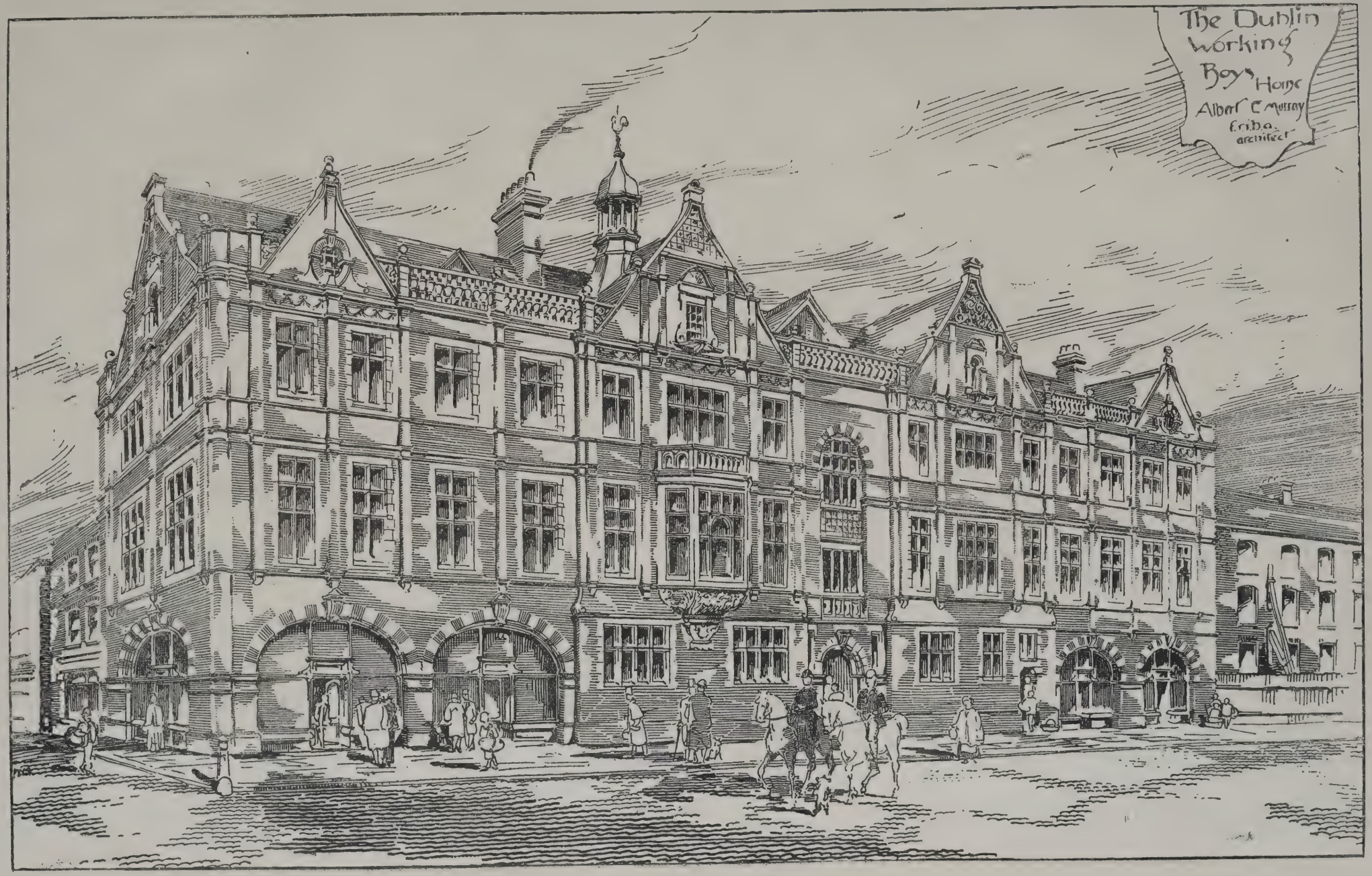


Entablature Panel



Frieze Panel

E. Chancellor, del.


The Dublin
Working
Boys' Home
Albert C. Murray
F.R.I.B.A.
Architect

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ILLUSTRATIONS.

NEW CHIMNEYPIECE, LINCOLN COLLEGE, OXFORD.—THE BLACKPOOL TOWER.—NEW PREMISES, WIGMORE-STREET.—KIDDERPORE ESTATE, HAMPSTEAD.—NEW TRANSEPT, ST. BARTHOLOMEW'S, SMITHFIELD.—CHIMNEYPIECE FROM FLORENCE.—THE DUBLIN WORKING BOYS' HOME.—FURNITURE AND CARVING FROM CARPENTERS' HALL.

Our Illustrations.

LINCOLN COLLEGE, OXFORD.

Lincoln College was originally founded, in 1427, by Richard Flemmynge, Bishop of Lincoln. Like several other colleges at Oxford, the new society was at first settled in an ancient hall, which was bought for the purpose, and it was not till after some years that it had any buildings specially designed for its accommodation. The founder died in 1430-1, leaving his new college insufficiently provided for, and still inhabiting Deep Hall. The first considerable benefactor was John Forest, Dean of Wells and Prebendary of Banbury, who, in the year 1436, besides adding to their endowments, built the Hall or refectory, together with the kitchen, the buttery, and the chamber over it. He also built an oratory or small chapel on the north side of the original quadrangle, using for that purpose the materials of the old church of St. Mildred, which was taken down in the year above-mentioned. This oratory was converted into a library when the present chapel was built, in 1631, on a new site; but the original hall, kitchen, and offices remain to the present day. The Hall, however, was very extensively modernised in 1701, at the expense of Nathaniel, Lord Crewe, and others, when the walls were lined with plain Classic wainscoting, the old oak roof was concealed by a coved plaster ceiling, and the window traceries were at the same time cut out, and the openings filled with plain sashes. A more justifiable innovation was the introduction of a fireplace which blocked one of the ancient windows. The hall is now being gradually brought back, under the direction of Mr. T. G. Jackson, to its original character. The plaster ceiling has been removed, and the fine old open-timber roof of 1436 repaired and restored to view, and strengthened by iron ties and plates. Behind the modern panelling was found, during the erection of Mr. Jackson's new buildings some years ago, the tracery of the old window blocked by the fireplace; and from this, aided by the old engravings in Loggan's book, the original design of the windows has been recovered and is now being reproduced. As soon as funds will allow, it is intended to line the walls with new wainscoting of oak, suitable in style to the character of the original architecture. Like all Mediæval halls, collegiate or domestic, that of Lincoln College, built in 1436, was originally warmed by a brazier in the middle of the floor, from which the smoke escaped through an open lantern in the roof. At Lincoln the lantern still remains perfect, though no longer open to the hall below. A fireplace was formed, probably when the hall was panelled in 1701, in one of the old window recesses. The chimneypiece of that day, a very modest affair, is now to be replaced by that shown in the accompanying sketch, as part of the restoration of the hall under Mr. T. G. Jackson's direction. The new chimneypiece will be of Portland stone, and will bear the arms of the College in the centre, and those of Dean Forest and Lord Crewe in the spandrels of the hood. Above will be exposed the head of the original window, hitherto concealed behind Lord Crewe's panelling, from which the exact form of the original window traceries has been recovered, and by which the rest of the windows, now filled with plain wooden sashes, are about to be restored, as was shown in the previous illustration from the Royal Academy of the hall, published in our issue of June 12, 1891.

SELECTED DESIGN FOR THE BLACKPOOL EIFFEL TOWER.

This design, by Messrs. Maxwell and Tuke, Manchester, has been chosen in the late competition, and the new buildings are to be erected upon a plot of land containing about 6,000 square yards, bounded on the westerly side by the central beach and on the other sides by Bank Hey-street, the principal street approaching the town from the central station, by Victoria-street, and by a narrow street on the south side. The position is the most central in Blackpool, being midway between the north and south piers, and with 150 yards of the central station. The plan of the new building will be almost rectangular in form, with a tower 100ft. square in the centre. The base of this is to be used as a circus, with four entrances from the central beach and Bank Hey-street, besides performers' and horse entrances from the narrow street. On the right and left of the circus are large arcades for the sale of toys, jewellery, and other fancy articles. Each arcade will have six entrances, three being from the central beach and three from Bank Hey-street. The space between these important thoroughfares will be traversed by eight broad passages. The outside portion of the ground floor facing the three principal streets will be devoted to shops. The first floor will be occupied by the circus gallery, and the remainder of the floor by the menagerie and aquarium, which will be reinstated on this floor by an attractive wax-work exhibition, and by popular exhibitions of varied kinds either permanent or annual. The second floor will be a spacious promenade concert-room and floral hall, with an area of nearly 30,000 square feet, with two stories of open-air balconies and cafés facing the sea. The Eiffel Tower, between 400ft. and 500ft. high, will stand in the centre of the plot. It will be 100ft. square at the base, and will be reduced to 30ft. square at the foot of the cupola. The first or grand gallery, 70ft. above the level of the ground, will consist of an inclosure 80ft. square, with an open balcony surrounding it 18ft. wide, and at this level the lifts from the ground floor will terminate and the central lifts to the summit will commence. This inclosed hall will be fitted with shops for the sale of refreshments, confectionery, photographs, and other fancy articles, and with cafés raised several feet above the level of the gallery outside. The second gallery, 300ft. above the level of the ground, will comprise an inclosed hall 30ft. square, where the lifts will terminate, and in order to accommodate the crowd of visitors expected to be conveyed by the lifts, there will be five open galleries above this, containing about 27ft. square in each, and one open gallery 36ft. square with a double staircase so arranged that the visitors can only pass in one direction. By these means the directors hope to accommodate as many as 20,000 passengers in one day, which is a very important consideration in a place like Blackpool, where as many as half a million visitors are registered as visiting the town in one week. The lantern and cupola, in which it is intended to place an electric search light, will rise about 50ft. above the uppermost gallery, and will be approached by a narrow circular staircase. The means of access to the upper floors of the building and to the tower will be very commodious. For persons desirous of ascending the lifts, the large central hall, with entrances from the beach, will be arranged on the ground-floor, with a service of hydraulic lifts to carry visitors to the first or second floors of the building, or to the great gallery in the tower, 70ft. above the level of the ground. If visitors desire to go higher than this they must be transferred into one of the central lifts, travelling from this to the second gallery, 300ft. higher, whence they can ascend still higher by means of ample stairs to any of the six galleries over head, of which mention has already been made. In addition to the above mentioned lifts, ample provision is made for staircases leading to the different floors and to the summit of the tower. The first and second floors will be served with three staircases, each 10ft. wide, and four staircases each 5ft. wide. The broader staircases will stop at the level of the promenade concert-room, but the four narrower stairs will be carried to the level of the great 70ft. gallery. When the buildings are being cleared of visitors, these stairs will be equivalent to a staircase 50ft. wide, which would enable 35 persons to march out abreast. It is intended to construct the tower of wrought-iron and steel, but in order to make the fullest provision against the contingency of fire, the 16 great legs will be formed with square iron lattice pillars, filled and clothed with Portland cement concrete of a decorative character, with the light iron lattice work showing between. Besides giving great security in the event of fire, the additional weight of the concrete legs will afford immense stability against wind pressure, which is a power to be carefully considered in Blackpool. The materials intended to be used for the fronts are red brickwork, with terracotta dressings of a somewhat elaborate character. The buildings will be lighted throughout by electricity, which will be produced by machinery in the basement. The cost of the buildings is estimated at £120,000.

NEW PREMISES IN WIGMORE-STREET.

The whole of the front of this building is in terracotta supplied by Doulton, the modelling is by Walter Smith. Messrs. Mark Patrick and Son were the builders, Mr. T. E. Collcutt is the architect.

KIDDERPORE ESTATE, HAMPSTEAD.

The recent census returns show that no part of the metropolis has grown at a more rapid rate than its north-western suburbs, and it is not necessary to seek far for the cause of what may be called an almost abnormal growth. Hampstead is one of the few districts in London which, close to the doors of our enormous population, yet contains in itself all the qualities of a health resort. Its soil, its great elevation above the sea level (or, better still for Londoners, above fog level), its famous Heath, and its accessibility by rail and road, combine to mark it both as the residential suburb for the well-to-do classes and the holiday resort of the masses. Little wonder, therefore, that in the last two decades its salubrity has gained for it a larger increase of population than that of any other suburb of London. The considerable development of building operations in Hampstead has, of course, involved the removal of many of its fine old houses and the absorption of their spacious pleasure-grounds which, a generation or two ago, occupied its best positions. Among those mansions, one of the most prominent was Kidderpore Hall, so named by its owner and builder, a retired Anglo-Indian, who in the flourishing days of "John Company" made his fortune at Kidderpore, and associated its name with that of the "lordly pleasure house" which was destined, for many years, to be one of the best-known landmarks on the high ground in the north-west of London. The march of events has converted Kidderpore Hall and its grounds into a building estate; but the owners have dealt gently with the "genius loci," and not even the Society for the Preservation of Ancient Buildings could have more jealously guarded the interesting old house, or have preserved with greater care its beautiful old trees and shrubberies: even its old name has been adapted to the new condition of things. The mansion, with an extensive additional wing, containing lecture-rooms and classrooms, and all the adjuncts of a modern high-class ladies' college, is still intact on the Hampstead heights, and under its new name of "Westfield College" is budding into new life in an old neighbouhood full of historical recollections and associations. The old meadows have become a new building estate, which is destined to be, in the near future, an important addition to Hampstead, to follow, and perhaps surpass, the great success of Fitzjohn's-avenue and its surroundings, which have created a field for a much advanced style of domestic architecture with a special character of its own. The estate stretches northwards towards the Heath from the Finchley-road, to which it has a frontage of more than 1,000ft., and, rising

gradually to an elevation of upwards of 250ft. above Ordnance Datum, it is of such height that Windsor Castle on the one side, and the Crystal Palace on the other side, appear to lie in a hollow at its feet. It is closely adjacent to three railway stations, and to the principal omnibus termini, and is further enlivened by the numerous stage coaches now using, daily, the main road from London. The new roads which have been constructed on the estate appear to have been laid out with great care, so as to avoid serious gradients and all interference with the beautiful old trees and foliage. The satisfactory method of development, and the skill with which the first few houses on the estate have been designed, induce us to give this week a double-page illustration of the "Kidderpore Estate," and also a plan of one floor and a perspective view of one of the first houses in course of erection at the junction of the two most important roads. Later on we propose to give views of some of the other houses. The architects, from whose designs the whole of the works have hitherto been executed, are Messrs. Davis and Emanuel, of 2, Finsbury Circus, and the management and further development of the estate are in their hands. We are asked to state that the freeholds of the lots are for sale, free from all restrictions, except such as are of mutual benefit to the purchasers, and that all sewers and branches for house connections are formed and water laid on.

NEW SOUTH TRANSEPT, ST. BARTHOLOMEW THE GREAT, E.C.

THE original south transept of St. Bartholomew the Great was destroyed by fire, like so many other parts of the church, about the year 1825. The walls remained standing for a few years, and were then taken down, and a brick wall built across the opening to keep out the weather. The space above the level of the triforium floor was filled in with a canvas vestry. This brick wall and its cement windows having become insecure, it was decided last year to rebuild it; the canvas vestry was therefore removed, and the present transept shown in the view has been built. The transept has only been carried out one bay to the southward instead of the full original depth, partly on account of the adjoining lights, and partly on account of the natural desire not to increase the area of a fabric the maintenance of which is already a heavy burden on a poor parish. No old work whatever has been interfered with by this transept, and a good deal of interesting Norman work has been brought to light. The new work has been built in the style of the clerestory of the choir, and an endeavour has been made at the same time to preserve the massive character of the earlier work. The remainder of the site of this old transept has been laid out and planted, to the great improvement of the neighbourhood. The new work has been faced externally with flints and Portland stone dressings, and internally with plain Bath, the colour of which harmonises well with the quiet tone of the interior of the church. The work has been well and carefully carried out by Messrs. Dove Bros., of Islington, Mr. Gregory being the foreman.—A. W.

CHIMNEYPIECE BY BENEDETTO DA ROVEZZANO, FLORENCE.

THIS masterpiece is the celebrated Borgherini fireplace sculptured by Benedetto da Rovezzano for Pier Francesco, and, like his greatest work done in 1506—viz., the reliefs from the demolished tomb of St. Giovanni Gaulberto, a saint of the Vallombrosian order, brought from the monastery of St. Salvi—is now located in the Bargello at Florence. It stands at present in the new gallery next the room on the opposite side of the courtyard, where the great Della Robbia bas-reliefs, intended for the cathedral organ, are arranged. The photograph which we have reproduced shows the exquisite detail of this chimneypiece by Rovezzano, who, it will be remembered, figured conspicuously among the architect-sculptors of the Renaissance. He was a pupil of Donato Benti, whom he assisted in carving the fine marble gallery for the organ-loft in San Stefano at Genoa in 1499, and also in sculpturing a tomb at the commission of the King of France in 1502. Rovezzano came from Pistoja, and his work was chiefly of an architectural character, such as beautiful portals full of graceful foliage, as at the house of Oddo Altoviti; and charming friezes, capitals, and columns, as in the exquisite fireplace which he made for the Borgherini family. The distinguishing marks of Benedetto's designs are classic grace and extreme finish. His marbles are so polished that the surface is soft as satin. This is a singular quality of the Florentine school of the second half of the 15th century which they shared with the ancient Greeks. Wax was used to obtain the "circumlitio" or finished surface, such as Nicias obtained for the works of Praxiteles, or like the lustre seen in the works of Mino of Fiesole, the Majani, Desiderio of Settignano, as well as the examples left us by Rovezzano. This master of the sculptor's art was most successful as a tomb maker. His monument to Piero Soderini in the Church of the Carmine at Florence and the tomb of Oddo Altoviti in the same church are very good specimens of his style. Rovezzano lived in England for five years, and carved a monument for Cardinal Wolsey in 1524. This worthy's disgrace caused the demolition of the work. The bronzed parts were fused by order of Parliament in 1646, and the marble sarcophagus served ultimately for Lord Nelson's monument in St. Paul's Cathedral. Thus this great Italian sculptor's noble work was brought to our own doors, and no doubt he influenced for good much of the contemporary work in this country.

WORKING BOYS' HOME, DUBLIN.

THE Working Boys' Home and Harding Technical School, which have their present house in Denzell-street, are now erecting new premises in Lord Edward-street, Dublin, the new street leading direct from Dame-street and Cork-hill to Christ's Cathedral, lately so splendidly restored by Mr. Henry Roe. The site is on the north of the street running from the west corner next the cathedral, 162ft. down street. The charity is supported partly by money left to it, and partly by subscription, and is a most useful one, supplying, as it does, a home for boys, with both education for mind and body, at a cheap rate, and enabling them to serve their time at a trade, and live in Dublin comfortably and respectably, and not exposed to the temptations that youth is liable to fall into. The building is of brick faced with Dennis Ruabon red brick and buff terracotta, and contains on the ground floor entrance porch and hall, dining-hall, kitchen pantries, and also superintendent's office, lavatories, &c., and over two libraries, recreation-room, and large lecture-hall, with platform, &c., for entertainments. On this floor the superintendent has his private apartments, and over this is sleeping accommodation for about 75 boys, with all necessary sanitary arrangements, baths, &c. On ground floor there is also a good space at rear, to be used as a recreation ground and gymnasium. The contractors are Messrs. H. and J. Martin, of Belfast, and the whole is from the design and under the superintendence of Mr. Albert E. Murray, F.R.I.B.A., architect, 37, Dawson-street, Dublin.

FURNITURE AND CARVING AT THE CARPENTERS' HALL.

WE give this week a few sketches from the exhibition recently held by the Carpenters' Company at their hall in Throgmorton-avenue. For the Table, Mr. Jacob obtained a silver medal. It is made of mahogany, and has two flaps, and it is fitted with a good, useful drawer. For the oak Hall Chair, Mr. G. W. Redmond is answerable. The carving is well designed, and in the circular back is nicely arranged to fill its position. The Entablature Panel is a spirited piece of carving, the dolphins and aquatic birds are quite after the manner of the Italian Renaissance. The Frieze Panel, which took a first prize and bronze medal, is noticeable for its vigorous design and strikingly bold execution, the deep shadows obtained rendering it very effective.

The next annual meeting of the Cambrian Archæological Association will be held at Killarney during the second week in August, by invitation of the Royal Society of Antiquaries of Ireland. The president elect is Professor Rhys.

New premises for the Bank of Ireland have just been opened at Sligo. The building is three stories in height, and situate close to the Victoria Bridge. The facing materials are limestone, with Mount-Charles stone dressings, and the character is Ionic. The contractors were Messrs. Clarence and Son, Ballisodare, the whole being carried out from the plans, and under the supervision of, Messrs. Millar and Symes, 186, Brunswick-street, Dublin, architects to the Bank of Ireland.

HYDRAULIC CONCRETE.

POZZUOLANA, a volcanic production found in Italy, has the property of imparting hydraulic qualities to rich limes. In marine constructions in Italy, and on the shores of the Mediterranean, this concrete has been found to give the best results, and to set quite hard. The pozzuolana concrete is simply thrown into the sea from baskets, and confined between boarding to the shape of the wall. The new basin constructed at Pola by the Austrian Government is formed in a like manner, between rows of piles, and this concrete has been used on a larger scale in the great mole which protects the Port of Algiers. The blocks of béton of immense size were moulded in wooden boxes, after which the boxes were removed, and the blocks launched into the sea to find their own level. Some of the blocks were formed *in situ*, and were composed of one part of rich lime, two parts of pozzuolana, and four parts of broken stone. The blocks set sufficiently hard in 24 hours to resist the shocks of heavy seas. Great care in the use of the proper proportions, and in the manipulation of the ingredients, is necessary in hydraulic-concrete structures.

STRENGTH OF CEMENT.

A VERY valuable summary has been compiled and published in Mr. W. G. Kirkaldy's "Strength and Properties of Materials" to show the range in the strength of cement. The range in quality varies much. The tests show the resistance to pulling stress of various samples of cement, all tested neat, and age 10 days. The highest stress per square inch is 643·4lb. for a cement weighing per bushel 115lb.—the lowest recorded is 87lb. per square inch. Between these extremes we have no less than 178 tests of gradually increasing figures. The 20 days' samples vary from 534·8lb. to 203·2lb., the 30 days' samples from 675·2lb. to 378·6lb., and the 100 days' samples, of which there are only two, are 573·6lb. and 568lb. The value of this table is that the stress results are clearly printed in large type, and all the specimens were prepared on one system—ten specimens to each set. The briquette used had 5sq.in. area. Engineers and architects might usefully consult this table before specifying the required strength of cement—a subject which admits of a variety of conditions and of much misapprehension.

BOOKS RECEIVED.

Water-Supply: a Handbook for General Use, by JOSEPH PARRY, M.Inst.C.E., Water Engineer, Liverpool, new edition (London: George Philip and Son), is an elementary manual on water as an agent in sanitary progress. Its composition and purity, safe sources of supply, purification, domestic filtration of water, the water companies, distribution of water, pipes and fittings, cisterns, rural supplies are matters that are briefly treated. Mr. Parry has made his little handbook a useful one for the householder as well as the general reader; and we think it might be usefully introduced as a text-book in our schools, public as well as private, as the subject of water-supply, its purity and domestic use and storage, are questions that more deeply concern the welfare, sanitary and moral, of the public and youth of both sexes than the elementary properties of matter and the principles of light, heat, or electricity. A sketch is given of the first legislative measures on the subject, the Health of Towns Commission of 1844, the first general Act of 1847, the Public Health Act, 1848, the Public Health (Water) Act, 1878, and other statutory powers, and some valuable statistics and reports are given; also, good summary of the composition and analysis of water, the action of the Legislature in regard to raising the standard of purity, the softening processes, and the influence of supply on the mortality. The results of the microscopical report of Dr. Hassall are given. The most practically useful part of this little treatise describes the forms of house filters, water cisterns, &c., and points out the defective arrangement of cistern and overflow pipe by which the latter becomes a communication between the sewer and the water cistern; and the danger of allowing closets to be supplied from cisterns which supply the drinking water. The desirable points to consider in water closets are noticed, and the mechanism of ball traps, regulating cisterns, taps, and other fittings are

noticed. A variety of other information that every householder should possess in connection with water supply and fittings will be found in Mr. Parry's useful manual.——*Sciography, or Parallel and Radial Projection of Shadows*, by ROBERT PRATT, head master of Science and Art, Barrow-in-Furness. (London: Chapman and Hall, Limited). While we have numerous treatises on practical geometry, solid geometry, perspective, &c., the subject of the projection of shadows is rarely or very imperfectly treated. Mr. Pratt's well-printed and illustrated work supplies a series of graduated exercises, which will be found of essential value to architectural and engineering students. Our own articles on the subject were prompted by a desire to supply a series of problems of use to the draughtsman. Mr. Pratt's exercises are clear and brief. The orthographic projection of the rays in parallel lines at an angle of 45° has been followed, by which system the depth or width of the shadow projected becomes a measure of the projection of the feature. The first plate of diagrams illustrates lines and plane figures, the rays of light parallel and inclined at 45° to the intersection line or X Y in plan and elevation. These explain the principle of projection as far as regards vertical and horizontal planes; next we have the mode of the projection of rays on an inclined plane and on two oblique planes forming a stepped embankment; lastly, of curved surfaces. The regular solids are next dealt with in a series of clear problems; then follow solid figures of various shapes, also the principles of architectural shadowing as applied to columns—square, round, and fluted. The illustrations given of the art as applied to engineering objects and machinery are of value, and there is little doubt that complicated machinery and details receive considerable aid, and are made more intelligible by, a correct drawing of shadows. We may refer to the beautiful shaded wood engravings of machinery which weekly appear in the engineering journals, as showing to what degree of accuracy the art of shading has been brought; how the shadow cast on the different surfaces of cylinders and rods explain their form and prevent the inevitable confusion of lines that would occur if the shadows were omitted or inaccurately represented. Many of those shadows are not perhaps geometrically projected by rule, but the draughtsman has, by a course of study, such as is afforded by this treatise, mastered the effects of intersection on different forms and positions of surfaces, and can, with the exercise of an artistic eye, introduce his shadow with sufficient truthfulness and effect, as to give value to his drawing. The architectural draughtsman has greater need of combining both knowledge of the art with artistic taste, but how few drawings and perspectives we see are shaded with anything like accuracy. We have seen such absurd shadows cast by towers, chimney-stacks on roofs and walls, that they have entirely spoiled an otherwise well-drawn perspective. The problems given in Mr. Pratt's book will, if carefully studied, prevent the glaring mistakes so often met with in pen and ink and shaded colour drawings of buildings. These exercises will explain how the shadow of a column appears when projected on mouldings. The example given of this problem might have been improved, and a few selected details of architectural work would have been desirable. The truss, Gothic arcade, &c., are poor, though they illustrate the principle. We have also illustrations of radial projection, in which the source of light is a point, or two points; these look rather more complicated in the lines required, but are soon mastered when geometrically understood. The parallel and radial examples of projected shadows might have included a few more architectural treatments. The perspective projection of shadows includes examples of the shadows projected by a gateway on the ground and sloping bank; a chimney-stack shadow on sloping roof, interior shadows cast on walls and ceilings. These projections, of course, involve a thorough knowledge of perspective, and are very necessary to the architectural draughtsman. Reflections are next treated on plane and cylindrical surfaces, the diagrams illustrating which are somewhat complicated by lines. Mr. Pratt's treatise is well adapted for students and candidates preparing for the examinations of the Science and Art Department, both in sciography and third-grade perspective. The examination papers of the Department have been freely used to this end.—*Sketches of Village Buildings:* from Designs by JAS. WILLIAMS, Architect, with Notes (London: Richard Bentley and Son, New Burlington-street), is a small, oblong volume of letterpress and ink photos from monochrome sketches of village buildings, designed with much feeling and characteristic simplicity. They have all the effect and breadth of sepia sketches. Plates 1, 2, and 3 are very appropriate. The vicarage and grouped cottages in twos and threes are plain English-looking 17th-century structures, free from all modern cant and fussiness, the high-pitched tile roofs, with gabled ends, having simple barge-boards projecting, and a little variety introduced by filling in one of the gable fronts with half-timber work, and projecting over wooden brackets the upper story. The chimneys are large, plain, and high, grouping well with the outlines. Only one stone treatment is shown, No. 4, which is a trifle out in its perspective, and this fault is apparent in some other sketches—10, 21, 22. Here and there a tiled gabled end is seen. The old-fashioned mullioned casement, plain or projecting on a corbelling or on brackets, is introduced in most of the cottages; and the sketches of interiors, as Nos. 5, 16, 21, with their large fireplace openings and carved mantel, panelled walls, and bay windows with seats round them, are pleasing. The author has an artist's eye for grouping; he loves to give us the panelled wall and ceiling, and carved chimney-piece, with its old-fashioned dog grates, and it is this old picturesque character he would revive. And for the country districts this style is natural and appropriate—such, for example, as we find in Kent and Surrey,—infinitely more pleasing than the plain, box-like rooms with ordinary window-sashes, with bare, plastered walls and ceilings. Mr. Williams conjures up from the imagination, the features of a country home; as he says, an "old-fashioned inn," with all its faults, is always "attractive and interesting"; so, too, the old-fashioned corner and ingle nook was a veritable haven of rest in the long dark evenings of the winter. The notes on materials for walls are suggestive. He speaks of "harling or roughcast," which can be coloured as a good surface, when bricks or stone cannot be obtained. When done in lias lime or cement mixed with shingle, the surface is weatherproof, and more pleasing than ordinary cement work. The red hanging tilework is always a characteristic kind of weathering for walls in the country, but the modern "Queen Anne" and Gothic crazes have destroyed the simplicity of their old use, and made them merely ornamental features. It is a pity Mr. Williams did not give a few sketch plans to accompany the perspective sketches. "A Small Village Church" (14) is a little out of drawing, but quaint. We do not understand its plan, which ought to be a plain parallelogram broken by a side or end tower. The form of that given on plate 22 is also rather vague, and the projection seen behind looks rather like a single transept arrangement. We are more pleased with the domestic work, the cottage residences, almshouses, village shops, and village inn and shops; they are at least more homely and country-like than many of the over-timbered and elaborate designs now seen in country roads and lanes.

THE LONDON CARPENTERS' LOCK-OUT.

THE struggle between the London carpenters and the Central Association of Master Builders threatens to assume still greater dimensions, as the men have decided to call all the men out of the biggest of the shops, which so far have been unaffected by the dispute, as the masters refused to concede on Wednesday the 47 hours week and the 10d. an hour demanded, on the ground that the letter of the joint committee contained a threat. Neither side shows signs of wavering, for while the master builders declare they are benefiting by exemption from time penalties, funds are coming in to the aid of the men more rapidly each week. There are signs that the long continuance of the struggle is beginning to affect the temper of some of the men compulsorily unemployed. Hitherto we have been pleased to note the quietness with which the dispute has been conducted, and much regret to see that on Monday Charles Miller and Hugh Underwood, carpenters on strike, were, at the Westminster Police-court, sent to prison with hard labour for three weeks, for following and using threatening language to Andrew Robertson and John Balls, foremen in the employ of Messrs. Mowlem and Co., of Grosvenor Wharf; while at the Southwark Police-court on the same day, James Forsyth, a carpenter, was ordered to be imprisoned for fourteen days for assaulting another carpenter, with intent to prevent him from following his employment during the present strike.

Two meetings of the carpenters and joiners of London and the suburbs were held on Sunday afternoon. The principal gathering was at Finsbury-park, where Mr. E. Taylor presided. Mr. L. Burr moved, "That this mass meeting of building operatives expresses its sympathy with the carpenters and joiners on strike in their endeavour to obtain the eight hours' day, and promises to support them morally and financially." The resolution was carried. Mr. W. Hepworth, a delegate to the general committee, moved, "That in the opinion of this meeting of carpenters and joiners the time has arrived when we should take more drastic measures to bring about a settlement of our present dispute in the building trade, and if our employers do not meet our committee during the present week to arrange for a settlement of the strike and lock-out, that the central committee be requested to strike all shops and jobs where the terms of the memorial have not been conceded on Monday, July 6." Mr. J. Yallop seconded. Mr. J. Mackie (chairman of the Building Trades Committee) asked the meeting not to vote for the resolution, and at first refused to put it to the meeting; but, after a scene of great confusion, ultimately did so, when it was lost by an overwhelming majority, only fifty hands being held up in its favour.—At Victoria Park, where a similar meeting was held, a resolution of sympathy with the men was carried.

A meeting of the carpenters and joiners of Edinburgh and Leith was held on Friday evening in St. Mary's-street Hall, Edinburgh, at which Mr. Mackie, London delegate from the United Trade Committee of Carpenters and Joiners, gave an account of the movement for a reduction of hours and an advance of wages among the carpenters and joiners of the metropolis. A resolution was unanimously adopted, pledging the meeting to do everything in their power to support their brethren in London both morally and financially. Treasurers were appointed for the Edinburgh and Leith districts to receive subscriptions.

CHIPS.

The erection of the proposed new church at Sutton, in the parish of St. Helen's, has been commenced. The structure, without tower, is estimated to cost about £7,000.

The Penketh (Warrington) Wesleyan Chapel is being enlarged and redecorated. The enlargement will give sitting accommodation for 100 more persons, and the cost is estimated at a little over £1,000.

The designs of Mr. G. S. Packer, a local architect, have been accepted for the new temperance hall for Southport, the erection of which will shortly be commenced. The new hall, to seat 700 persons, is to be commenced with the present hall, this being first raised, and the elevation decorated.

New schools at Lower Gornal, Sedgley, were opened on Tuesday. The building accommodates 280 scholars and cost £2,800. The buildings are of red brick, with Gornal stone dressings, and the interior woodwork, with desks and tables, are of pitch-pine. Mr. Brevitt (Wolverhampton) was the architect, and Mr. H. Gough, of Sedgley, the contractor.

At a meeting of the Kenwyn Church Council on Tuesday week, plans for a new vestry on the north side of the church near the tower (submitted by Messrs. Henderson and Son) were approved. The cost is estimated at £100.

The American Screw Co., of Providence, Rhode Island, are about to establish branch works at Leeds, on the site of the old Perseverance Ironworks in Kirkstall-row. The factory to be erected is the design of Mr. Charles D. Rogers, of Providence; but the plans have been brought into conformity with the building by-laws of the borough by Mr. Thomas Ambler, architect, Park-place. The structure now to be raised is only one-half of what it is ultimately intended to erect. Meanwhile it is proposed to cover the frontage to Kirkstall-road to the extent of 100ft., and to carry the building back for 344ft., with a width (over the greater part of the latter) of 80ft. When the time for extension arrives, a duplicate of this building will be erected, and the two buildings running backwards from the road will then be separated by a yard 40ft. in width. The structure is to be of a plain character.

Building Intelligence.

BLACKHEATH.—St. Mary's Catholic Church Cresswell Park, Blackheath, which is now completed, was opened by the Bishop of Southwark on the 1st July, and consists of nave, chancel, Lady-chapel, chapel of the Sacred Heart, organ-chamber, two sacristries, and baptistery. On the right of the west or principal entrance, to the left of the nave gable, and facing approach, stands a small but proportionate tower and octagonal spire, with a clock and chiming arrangement. The church will accommodate about 500 persons. The whole of the floors are in Duffy's wood-block paving. The carving of the church was admirably executed by Mr. D. N. Smith, of Clapham, in keeping with the 14th-century style of Gothic architecture. The nave, from the finished floor-level to apex, is 50ft. in height, and is formed with open principals in pitch-pine, relieved in large panels with plaster. No pains or expense have been spared to render the roofs impervious to heat and cold. The cost of the church, as contracted for and so ably carried out by Messrs. Smith and Sons, builders, of Norwood, was £4,147, under the supervision of Mr. C. Healy, the clerk of works, from the designs and working drawings of Mr. Alfred E. Purdie, architect, of Talbot House, Crownhill-road, Willesden Junction.

CORSTORPHINE.—On June 25 the foundation-stone was laid of a public hall at Corstorphine. The plans, prepared by Mr. J. Robart Pearson, architect, Edinburgh, show a well-lighted, airy hall, with a dome-shaped recess or platform, capable of accommodating 460 people. The ceiling is partly circular and partly octagonal, divided into five bays by means of moulded plaster ribs. Behind the hall are two retiring-rooms, and above these a caretaker's house. The dressings are of red stone, and the walls of natural faced blue Hailes stone. The total cost will be from £1,400 to £1,500.

GUILDFORD.—The new Conservative club will be opened on Wednesday. The assembly-hall is 24ft. by 62ft., and is 13ft. high. Over the hall are the two billiard-rooms. The principal room is 41ft. by 24ft. There will be two entrances to the premises, one from Chertsey-street, and another from North-street. Mr. A. J. Sturges is the architect, whilst the contractors are Messrs. Smith and Sons.

LONDON HOSPITAL.—The Duke of Cambridge last week opened the new buildings which have just been added to the London Hospital. The additions made begin with a fine portico entrance from the street, through which the main hall of the building is reached. On the right side are the waiting and receiving rooms, rooms for the examination of both male and female patients, and some rooms for the nurses. On the left side the chief apartment is the students' day-room. On the first floor most of the space is filled by the new chapel, and on the second floor are the well-arranged surgical and clinical theatres. Both these rooms are 40ft. long and 23ft. wide, and are beautifully lighted from the roof. Mr. Rowland Plumbe is the architect. The entire expenditure has been £16,000 for the buildings, and £9,500 for the general repair of the sanitary arrangement throughout the hospital.

MANCHESTER.—A new home for the various agencies in connection with the Charter-street Ragged School is about to be built. It will contain a home for working girls, a large mission-hall capable of holding 600 persons, a lads' club, men's club, and classrooms for the upper and lower mixed schools containing accommodation for 1,200 children. There will also be a nursery where children whose mothers are at work during the daytime may be left, and accommodation for cooking and serving cheap dinners to day-school children. The cost of the extension and the furnishing of the buildings when complete will be about £7,500. Messrs. Maxwell and Tuke, of Princess-street, Manchester, are the architects, and Messrs. Peters and Sons, Rochdale, are the builders.

SMETHWICK.—Last week the foundation-stone of the new church of St. Michael and All Angels was laid. Plans and specifications have been prepared by Mr. A. E. Street, of Cavendish-place, London, who estimates the total cost of building at £4,450, and it is expected that (inclusive of site) the present work will require a sum of not less than £5,250. Towards this sum £3,900 is still required. The church, which will be Early English in style, will seat 800 or 900 persons. For the present no tower will be erected. Under the chancel there will be a parish room and vestry.

Engineering Notes.

WILTS AND BERKS CANAL.—The directors of this canal have accepted the tender of Messrs. Laver and Co., Bath, for dredging the canal, repairing the bridges, wharf walls, and other matters. The canal is to be dredged to its original depth and sectional area for its entire length of 70 miles. This important inland navigation commences at the Thames, at the south side of Abingdon, and proceeding south-westerly past the town of Wantage, goes westward through the towns of Swindon and Wootton Bassett, and between Chippenham and Calne. Passing the town of Melksham, it terminates at Semington, where it joins the Kennet and Avon Canal. At Eastcott, in the division of Swindon, a branch known as the North Wilts Canal joins the Thames and Severn Canal near Cricklade. There are also branch canals to Wantage, Longleat, Calne, and Chippenham. That part of the river Thames where this canal locks into it is 180⅓ft. above the sea. From the commencement of the canal to the Wantage river, 7¾ miles, there is a rise of 96½ft.; thence to the last end of the summit level, 15 miles, there is a rise of 71½ft., or a total rise of 168ft. The North Wilts Canal, from Eastcott to Latton, at the junction with the Thames and Severn Canal, is 9 miles, with a fall of 58ft. 8in. to Latton. There are 57 locks, with an average fall of 7ft. 6in., and about 78ft. long. The summit level crossed by the Kennet and Avon Canal is 116ft. higher than that of the Wilts and Berks. To secure this lower elevation Brunel laid down the main line of the Great Western Railway alongside of this canal through Swindon, instead of following the more direct route through Hungerford. The distance from London Bridge to Bristol by this route is 197 miles. The Wilts and Berks Canal was laid and constructed by the late Mr. R. Whitworth. The present works are being carried out under the sole direction of the engineer, Mr. P. Munro, St. Stephen's-chambers, Bristol.

ARCHITECTURAL & ARCHÆOLOGICAL SOCIETIES.

KENT ARCHÆOLOGICAL SOCIETY.—The annual meeting of this society was held on Monday and Tuesday last at Town Malling. The members met in the assembly-room on Monday morning for the transaction of general business, Earl Stanhope presiding. Afterwards they proceeded to Malling Abbey. The Rev. J. H. Timmins, M.A., treated of its history, and was assisted by the Rev. C. H. Fielding, M.A., whilst the architectural details were explained by Mr. E. P. Loftus Brock, F.S.A. St. Leonard's Tower was then inspected, under the guidance of Mr. Loftus Brock. The members next saw West Malling Church, which was described by the vicar, the Rev. J. H. Timmins. Carriages conveyed the members to East Malling Church, which was described by Mr. Loftus Brock. At the evening meeting, held in the assembly-room, the following papers were read:—"Notes on the History of Malling," by the Rev. J. H. Timmins; "On Old Burnham Chuch," which has recently been restored, by the Rev. Greville M. Livett, B.A.; "A Sketch of the Early History of the Malling District," by Mr. George Payne, F.S.A., hon. secretary. On Tuesday visits were paid to Bradbourn Place, where, by permission of the owner, Miss Twisden, the pictures, &c., were explained by the Rev. J. Francis Twisden, M.A.; to Leybourne Castle, with the Rev. J. H. Timmins as guide; to Leybourne Church, which was described by the rector, the Rev. C. C. Hawley, M.A., and to Totterscliffe Church. The so-called Druidical remains at Coldrum were inspected, under the guidance of the honorary secretary, and visits to Addington and Offham Churches closed a long and varied programme.

At the last meeting of the Cambridge Town Council, the salary of Mr. A. C. James, assistant to the borough engineer and surveyor, was increased £26 per annum.

TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

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The charge for advertisements for "Situations Vacant" or "Situations Wanted" is ONE SHILLING for TWENTY-FOUR WORDS, and Sixpence for every eight words after. *All Situation Advertisements must be prepaid.*

Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page advertisements and alterations in serial advertisements must reach the office by Tuesday Morning to secure insertion.

NOTICE.

Bound volumes should be ordered early (price Twelve Shillings each), as only a limited number are done up. A few bound volumes of Vols. XLI., XLIX., L., LI., LIII., LIV., LVI., LVII. LVIII., and LIX. may still be had, price Twelve Shillings; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

RECEIVED.—F. E. and Co.—D. W. J.—A. W. K. and Co. A. and Co.—J. T.—L. and Co.—B. C. B. I.—P. S.—J. D. M.—S. R. Q. Co.—H. S. B. Co.

A. C. ROTHERY. (The Public Health Act can be obtained through any bookseller, and of Spottiswoode and Co., the Queen's printers. You can obtain particulars of the Sanitary Institute Examination at the Parkes Museum, 74A, Wells-street, Oxford-street, W.)

"BUILDING NEWS" DESIGNING CLUB.

DRAWINGS RECEIVED.—"Mephy," "Sassenach," "Smilash," "Idler," "Albyn," "La Cigale," "A Pilgrim's Progress," "Merlin," "Multum in Parvo," "G" in a horseshoe, "Thinlin," "Etudiant," Pair of Scales, "Eighteen 91," "Better late than never," Three Lions on a Shield.

Correspondence.

CUTLER v. NORTH.

To the Editor of the BUILDING NEWS.

SIR,—It is but fair, I think, to the profession and Mr. Cutler to state that, in opposition to the expert evidence given by those Fellows of the R.I.B.A. who appeared for Colonel North, Sir Arthur Blomfield, A.R.A., V.P.R.I.B.A., Sir James D. Linton, P.R.I., Mr. Thomas Harris, F.R.I.B.A., and myself were in Court, prepared to support emphatically the plaintiff; but it was not thought necessary even to ask for our evidence.—I am, &c.,

ROBERT W. EDIS, F.S.A., F.R.I.B.A.

14, Fitzroy-square, W., June 30.

A NEW DEPARTURE.

SIR,—It is left to your contemporary, the *Builder*, to give what I venture to think is a new departure in journalism, and I will ask your readers to decide whether it is fair and right. The facts are as follows: In printing my speech at the Institute of last Monday week they put an editorial footnote. I wrote a letter of explanation, pointing out the inaccuracy. They print a part of that letter, as if it were the entire letter, printing my name. I wrote pointing out the

great injustice, because they imply that the part of my letter they publish is all that I can say in proof of my claim of originality, which is not true.

The facts are, for the last nine years I have had a scheme of technical education, long before, I believe, anybody else had, and it does seem unfair that the *Builder*, having endeavoured to make out that the Association was first in the field, should refuse to publish the facts I sent them. May I venture to ask you to publish the letter they refuse?—I am, &c.,

BANISTER FLETCHER.

SIR,—In reply to your editorial footnote in your last issue, in which you say that, if I claim priority for my curriculum, you would point out that the (rejected) scheme appeared in the same number of the *A. A. Notes* as chronicled my appointment to the chair at King's College, the amusing conclusion being, because the *A. A. Notes* had not previously chronicled my appointment, I could not have been previously elected. Pardon my mentioning that the conclusion is fallacious. I was appointed to the chair as early as March 14.

It is fair to mention I had some considerable advantages in preparing my curriculum, because I had some nine years before prepared a syllabus. And again, in the year 1883, I prepared a scheme for the establishment of a Chair of Architecture, the correspondence as to which I may some day publish.

It is sufficient now to say that my proposals eventually could not be carried out, because I could not have sufficient space for the establishment of the museum I desired.

The curriculum I had to arrange at King's College necessitated altering, so that all the subjects could be completed within the three academic years. I confess my work was lighter, as it was limited to architecture and building construction. The courses as to geology, chemistry, mechanics, and electricity, my students would have the advantage of studying those subjects under the several able professors.

The difference between the schemes is really the important point. Mine is based on the preservation of the system of the articled pupil, the principal allowing such pupil the time to attend lectures and classes, instead of himself giving that portion of the instruction.

Your report of my speech lacks its usual completeness, as it omits reference to the statement I made that the scheme is proposed (as I originally intended) to be extended to University College, the Worshipful Company of Carpenters having made a conditional grant of £200 a year for that purpose.—I am, &c., BANISTER FLETCHER.

Intercommunication.

QUESTIONS.

[10578.]—**Plumbers' Mates' Society.**—Could anyone inform me of a Plumbers' Mates' Society that is held in London?—H. T.

[10579.]—**Ventilation.**—Can anyone kindly tell me how many cubical feet of space a sitting-room should contain to be healthy which will have a fireplace in it and window, and two gas-jets burning, and four adult persons and two children? Also, can anyone kindly tell me how many cubical feet a bedroom should contain in which two adult persons have to sleep? The room will have a window and fireplace in it, and a Tobin's tube 18in. by 4in.—RESPICE.

[10580.]—**Romanesque Style.**—Dr. Zerffi, in "Historic Art Studies," BUILDING NEWS, 1874, says a more correct technical classification of the Norman style in England is to speak of it as "Anglo-Romanesque." Is this an accepted idea? Was the Norman work in England contemporaneous with the Romanesque on the Continent? The name of a good work on "Romanesque," giving its details, would oblige.—W.

By virtue of the provisions of the Warrington Improvement and Extension Act, passed some months ago, the undertaking formerly carried on by the Warrington Waterworks Company became vested on Wednesday in the town council, who have agreed to purchase the works as a going concern at a total cost, with incidental expenses, of something like a quarter of a million of money.

The Bishop of London consecrated at Stonebridge Park on Saturday the newly-erected church of St. Michael and All Angels', a red brick and stone structure, built on a commanding corner site on the summit of a hill, adjoining Harrow-road. The church is of lofty proportions, and the roof of timber supported by stone columns and arches. The chancel portion and spire have yet to be built. The architect is Mr. Child (Messrs. Goldie, Child, and Goldie, of 10, Kensington-square). The church has seating accommodation for 650 persons.

A new Sunday-school in connection with the Whingate Wesleyan Chapel, Armley, Leeds, was opened on Saturday. The school adjoins the chapel, and contains a large room, infants' school, and five classrooms. The large hall is 52ft. long, and 36ft. wide, and is connected with the chapel by a corridor 8ft. wide. Accommodation is found for 470 scholars. The elevations are brick, with stone dressings, and the whole building is heated with hot water. The total cost is £1,000. The work has been carried out under the supervision of Mr. Fred. W. Rhodes, architect, Wortley, Leeds.

LEGAL INTELLIGENCE.

DAMAGES FOR BAD SANITARY ARRANGEMENTS.—In the Queen's Bench on Friday and Saturday, Mr. Justice Day and a special jury heard the case "Mathieson v. Gillespie." It was an action brought to recover £350 damages for defective sanitary arrangements, by which plaintiff suffered from bad smells; and for an order of the Court compelling defendant to put the drains in proper repair. The defence contended there were no smells, and that everything was in proper order; or, if there was any smell, it was caused by plaintiff and his servants improperly using the lavatories and sinks, &c., for the washing of utensils used in business. The jury found for the plaintiff to the extent of £100 in respect of rent and damages, and for the defendant for £58 16s. 8d. for rent. On the counterclaim there was judgment for the defendant.

NO NOTICE GIVEN.—At the Loughborough Police-court, on the 26th ult., Thomas Hearne, Skipworth-street, Leicester, who did not appear, was charged by Herbert Herrod, surveyor to the Barrow Rural Sanitary Authority, that, having erected a new dwelling-house at Sileby, neglected, before such building was occupied, to deliver a notice in writing of the completion of the work. Mr. Scott, clerk to the Barrow Sanitary Authority, said that the prosecution was taken under section 97 of the by-laws. Mr. Herrod, the surveyor, proved the case, and the Bench imposed a fine of £2, or, in default of distress, 21 days' imprisonment.

BUILDERS WITHOUT CAPITAL.—At the Norwich Bankruptcy Court, on Monday week, before Mr. Registrar G. F. Cooke, the examination took place of George Samuel John Porter Smith, Marlborough-road, Norwich, and Harry Watling, Sussex-street, Norwich, trading as Smith and Watling, building contractors, Pitt-street. Their statement showed liabilities £1,602 19s. 3d., and a deficiency of £1,222 17s. 7d. The debtor Watling stated that he was a journeyman carpenter when he joined Smith in partnership, and he was then possessed of two houses, which were mortgaged for £180. He had no cash, and the houses had since been mortgaged for the partnership. He had 28s. a-week before he joined Smith, and had had about 25s. since, so that he had derived no benefit. He had looked after the carpenters' work at the shop, and ordered the stock, leaving Smith to attend to the books, though he helped him in getting out contracts. Neither of them had any real knowledge of building. The work undertaken by the firm consisted of small contracts and speculative building, and it was on the former that the greater part of the losses was incurred. Smith, the other partner, said he was in business about six months before Watling joined him. When he started he had about £10 to £15 capital, and he had £25 when he went into partnership. When they took jobs, they contracted for their own work and obtained sub-contractors for other work, and then they became sole contractors. He attributed his failure to losses on contracts. The largest contract was for houses at Greenhills, and amounted to £2,225, and this was about a net job. They had lost money over the Central Café, the Gladstone Club, Beckham Church, and St. Mary's Churchyard. Beckham Church had been a great loss to them. He had never had anything to do with church-building before, but he had a young man to assist him who understood the work. He contracted to do the work for £900, as the architect said they could not do it for £820, which amount they gave as their estimate. The firm had lost no money outside the business, and he took about £2 per week. The examination was closed.

New business premises for Messrs. R. D. and J. B. Fraser have been erected at the corner of Princes-street and Museum-street, Ipswich. The architects are Messrs. Eade and Johns, and the builder is Mr. F. Bennett.

On Wednesday week the memorial stones of a new Baptist chapel in Queen-street, Erith, were laid. The structure is to be in the Gothic style of the 13th century, of cruciform design, having nave and transepts, with gallery on either side, and organ-chamber behind the rostrum. It is to accommodate 800 persons, and will cost about £2,000, of which about £1,020 is raised. Mr. John Wills, of Derby, is the architect.

The laying of the primary stone of the new St. Paul's Church, Tyndall-street, Cardiff, was performed by the Earl of Dumfries on Tuesday afternoon. The present school chapel is too small for the requirements of the district, and adjoining property has been purchased. The buildings standing on the site have been pulled down, and in their place will be erected a church in the Early French Gothic style. The total length will be 104ft. and the width 51ft, and there will be a gallery. Seating accommodation will be provided for 450 persons. The total cost is estimated at £3,000. Mr. C. C. Jones is the architect.

WATER SUPPLY AND SANITARY MATTERS.

BAD DRAINAGE IN LONDON BOARD SCHOOLS.—The Educational Department has complained to the London School Board that the Charing Cross-road school is in a "disgraceful condition" in respect to sanitary matters, and the details of this insanitary condition show that the school must be a danger to others than those whose duty compels them to be within the building. The school was a transferred one, and the Board is not primarily responsible for the drainage. Complaint is also made of the school buildings in Goodman's-yard, Minories, in the City division, also a transferred voluntary school, in place of which the Board is to build a new school. The condition of this building is stated to be dangerous to the health of children and teachers. The Wandsworth District Board of Works having drawn attention to the state of the drains at the St. Andrew's-street Board School, Wandsworth-road, the assistant architect has surveyed them, and reported the drainage to be in a "deplorable condition" from being ill-laid, and the expenditure to set the matters right will come to £600.

NELSON.—On Saturday the ceremony of cutting the first sod of a new compensation reservoir for the Nelson corporation was performed by the chairman of the water committee. The reservoir is situated at the foot of Pendle Hill, about five miles from Nelson, and impounds the Black Moss stream. It will cover 16 acres of land, and have a storage capacity of 40,000,000 gallons. The contract price for the reservoir, which is expected to be constructed in about 12 months, is £7,292. The contractors are Messrs. Etheridge, Clark, and Co., of Manchester, and the engineer, Mr. Newton, C.E., of Manchester.

REDDISH SEWERAGE.—At the last meeting of the Reddish local board it was decided to at once complete the sewering of the district. The sewerage scheme was started about four years ago, but when it was about half-finished the engineer (Mr. Vawser) unfortunately died. The work has since remained in abeyance; but the board have now appointed Mr. Theo. S. McCallum, A.M.Inst.C.E., of Manchester, to carry it on.

CHIPS.

The tender of Messrs. J. Harley and Sons, of Smethwick, has been accepted for building the nave of the new church at Hamstead, Birmingham. The cost will be about £3,500. The foundation stone is to be laid on Monday, July 27.

On Thursday week the Bishop of Sodor and Man consecrated the new chancel of St. Thomas's Church, Westfield-street, St. Helen's. In addition to the erection of the chancel, the edifice has been reseated and other improvements have been carried out. The total expenditure has been about £3,300. The architects have been Messrs. Aldridge and Deacon, of Liverpool, and the contractors Messrs. Rothwell and Sons, of St. Helen's. Mr. R. R. Lowe executed the wood pavement.

The new schools in Pydar-street, Truro, in connection with St. Mary's parish, were opened on Monday week. These schools, which are built for about 400 scholars, and cost nearly £3,000, were designed by Mr. Swift, of Messrs. Henderson and Son, architects, and the contractor was Mr. James Julian.

Mrs. William F. Coles, of New York, has presented to the Wardens of the Cathedral of St. John, now in course of construction there, twelve magnificent tapestries acquired by her in Italy from the Barberini family, at the price, it is said, of 375,000f. This great series, showing the Passion of Christ, belonged once to the family of Pope Urban VIII.

The Longmore Hospital for Incurables, Edinburgh, is about to be enlarged by the erection of a new wing, at a cost of between £7,000 and £8,000. Messrs. Peddie and Kinnear are the architects.

The Tamworth rural sanitary authority have decided, in accordance with a report of their surveyor, Mr. H. G. Clarson, on the water supply of Kingsbury, to apply to the Local Government Board for authority to expend £250 in sinking a well in the permian formation at Kingsbury Wood, as a preliminary step towards carrying out a scheme of water supply by Mr. Clarson, estimated to cost £6,000.

On Friday a pawnbroker's shop at the corner of Tamworth-street, Hulme, Manchester, fell with a loud crash. A staff of men had just arrived for the purpose of enlarging the windows. The contractor (Mr. Swarbrick) had entered the building, when, without the slightest warning, the whole place fell in. Mr. Swarbrick had a narrow escape, and the workmen who were in the street also narrowly escaped, as the walls fell outwards. One labourer was caught by some falling bricks, but was able to walk home. The building is completely wrecked, only the roof being left.

Our Office Table.

IT is proposed, during the International Congress of Hygiene and Demography, in connection with Section VI.—Architecture in relation to Hygiene—to hold an exhibition of drawings of sanitary construction. The committee of this section will be glad to hear from members of the architectural and engineering professions in respect to any drawings they may be willing to contribute. The drawings should necessarily be of a constructional and practical character, and include such subjects as foundations in relation to ground air and dryness, drainage, water supply, lighting, heating, and ventilation. It is proposed to exclude perspectives, except bird's-eye views intended to show the disposition of the buildings. The drawings will be exhibited from the 10th to the 17th of August in the Library of the University of London, which will be the reception-room of the Congress. The committee reserves the right of making a selection from the drawings, if necessary, and will be greatly obliged by an early response from intending exhibitors to Mr. Thomas W. Cutler, hon. secretary Exhibition Sub-Committee, 5, Queen-square, W.C.

THE announcement of the intended resignation of Captain Eyre Massey Shaw, C.B., Chief of the Metropolitan Fire Brigade, has been received with regret and surprise. After a few months' experience at Belfast as chief of the police and fire brigade, he was appointed to his present office thirty years ago, after the fatal accident to Mr. James Braidwood at the Tooley-street fire. The manner in which he has secured discipline in his too small force is widely recognised. Captain Shaw's little work on "Fires in Theatres," written in 1876, and republished with additions two years since, has done much to educate the public and local authorities in the structural and mechanical safeguards against the spread of fire in places of amusement, and in requiring better means of exit from such buildings.

THE Electrical Company intrusted by the Commissioners of Sewers with the lighting of an area embracing about two-thirds of the City of London last week publicly demonstrated, on a comparatively limited scale, the nature of the installation they intend to put down. The experiment took place in Queen Victoria-street, where 26 arc lamps, worked from two dynamos, driven by a 20 horse-power indicated steam-engine, were kept alight from 9 to 11 o'clock. The gas was extinguished all along the street during the period of the experiment, and the electric light was steady and efficient. The mechanism actuating the carbon pencils is inclosed in a hexagonal pear-shaped lamp, the glass of which is obscured, and consequently much of the light developed is absorbed by the glass. The electric lanterns are placed on the top of plain iron columns 19ft. high and 120ft. apart. It will be for the Commissioners of Sewers, whose representatives witnessed the experiment, to report whether the lanterns and columns meet with their approval.

A FATAL accident befell Mr. Reginald Colebrooke Reade, M.A., of Torquay, diocesan architect for Exeter, on Sunday afternoon. Mr. Reade and a Torquay friend, Mr. Robinson, went to Dartmouth for a walk, and in Compass Cove, about four miles from that borough, they had a bathe. They had considerable difficulty in getting down from the cliff to the shore, on account of the slipperiness and steepness. Mr. Robinson finished bathing first, and ascended the cliff by the way they came, leaving Mr. Reade sketching below. After a couple of hours had elapsed, Mr. Robinson descended the cliff again, and there found his friend lying on the rocks in a terribly bruised and unconscious condition. Mr. Reade was conveyed with all despatch to Dartmouth Cottage Hospital, where he died the following evening from injuries to his head and leg. Deceased had resided at Torquay for several years. He was educated at Eton, he afterwards went to King's College, Cambridge, where he took his M.A. degree. He was about 35 years of age.

THE third annual meeting of the Guild and School of Handicraft, which is held at Essex House, Mile-end-road, took place on Saturday, when the new workshops and hall were opened by the Marquis of Ripon. The report stated the work was of an entirely practical nature, and had direct relation to the industrial training of the pupils. Among the new lines of work at present being taken up by the school, are classes for brazing and metal-work, gold and silversmith's work, English leather industry, guild and school press. The committee invite the further financial support of the public, and especially those who see in the School of Handicraft a genuine effort carried on by men who were artisans themselves for the improvement of handicraft and the application of art to industry. In addition to the work-rooms, there is a large garden with lawn-tennis courts.

CHIPS.

The church of Ormskirk has just been restored at a cost of £17,000. It is one of the most interesting churches in the country, dating from 1080. The Derby chapel, which for 300 years has been the burial-place of the Earls of Derby, has been restored at a cost of £1,500 by the present earl. The church has a massive tower and spire, standing side by side, and in that respect is unique in England. The work of restoration has extended over 12 years.

The Liverpool city council have decided to engage the services of Mr. G. F. Deacon, engineer, for the completion of the Vyrnwy water supply works, at an annual salary of £875, and for two years after that date as consulting engineer for the works, at a fee of £500, in both cases in addition to travelling expenses.

The ceremony of dedicating the two new treble bells added to the peal of eight at St. Sidwell's, Exeter, was performed on Saturday. The bells have been cast by Mears and Stainbank, and have been hung by Mr. J. Stokes, Woodbury. An old tower arch, which has been hidden from view since the last century, has also been opened out by Mr. Harry Hems, by which the belfry faces into the church. It is very finely moulded, and is Early 15th Century in style.

The parish church of Allerton, Somersetshire, has just been reopened after renovation, including redrainage, new heating apparatus, and the erection of a new vestry, all works carried out by Messrs. Merrick, of Glastonbury. A new organ is in course of erection by Messrs. Vowles, of Bristol, at a cost of £200.

The trustees of the National Art Gallery of New South Wales, who have hitherto restricted their competitions to oil and colour students, have decided, in response to an influential memorial, that next year prizes shall be offered for architectural drawings and sketches by students.

On Saturday the Mayor of Heywood opened the new public baths at Heywood, which have been given to the town by Mr. Alfred Grundy, Manchester. The total value of Mr. Grundy's gift is about £2,500.

Three stained-glass windows which have been placed at the western end of Almondbury church as a memorial of the late Miss Sholto Vere Hare were dedicated on Sunday. They were designed by Mr. Maycock, and executed by Messrs. Hardman, of Birmingham. The central window—that in the nave—shows our Lord seated as the King. The window in north aisle represents the Ascension, and that in south aisle St. Mary Magdalene in the Garden.

The foundation stone of a mission hall was laid at Freemantle, Southampton, on Friday. Mr. S. Kelway Pope, M.S.A., is the honorary architect, and Mr. T. J. Jukes the contractor. It will accommodate 160 persons.

The Maidstone Infectious Hospital has been renovated and redecorated, the two wards, the disinfecting house, the laundry, and the mortuary having all undergone restoration by Mr. Albert Trendall, under the supervision of the borough surveyor, Mr. W. G. Scoones, C.E.

A memorial has just been placed in the Pole chapel or south transept of Shute Church, near Axminster, in commemoration of Lady Pole and her three daughters. The work is executed in alabaster and marble, and was carried out by Mr. Harry Hems, of Exeter.

The Legislature of Massachusetts has just passed a law limiting the height of buildings in cities in that State to 140ft.

One of the old historic churches of Lancashire—Ormskirk Parish Church—is to be reopened to-day, after complete restoration, which has cost about £17,000, of which £1,500 only is required to free the sacred edifice from debt. This ancient church, dedicated to SS. Peter and Paul, is a magnificent old building, of great interest. The Derby chapel, on the south side of the chancel, has been the burying place of the Earls of Derby for the past 300 years.

MEETINGS FOR THE ENSUING WEEK.

SATURDAY (To-MORROW). — Architectural Association. Vacation Visit to Winchester. Train 9.5 a.m. from Waterloo.

TUESDAY.—Glasgow Architectural Association. "English Renaissance," by John White. 8 p.m.

SATURDAY.—Architectural Association. Vacation Visit to Haileybury. Train 2.10 p.m. from Liverpool-street.

National Registration of Plumbers.—Plumbers Registered since last List.

PROVINCIAL MASTERS.

Bellerby, W., Robert-street, Harrogate.
Benson, C., Knaresborough.
Best, A., Somerset-place, Teignmouth.
Cariss, T., Market-place, Easingwold, Yorks.
Corfe, J., 10, Lindale-road, Claughton, Birkenhead.
Garland, G., Bodmin.
Greaves, A., 3, Wills-road, Ilkley, Yorks.
Holding, J., 4, Woolton-road, Garston, Liverpool.
Johnson, C. H., 131, Chatham-street, Liverpool.

PROVINCIAL JOURNEYMEN.

Campbell, T., 18, Hall-street, Southport.
Clayfield, W. G., 35, Hill Park-crescent, Plymouth.
Coates, G., 5, Westmoreland-street, Harrogate.
Elleray, T. W., 3, Thirsk-terrace, Northallerton.
Hesford, J., Prospect-hill, Haigh, Wigan.
Le Gross, S., 6, Belmont-street, Plymouth.
Martin, T., 26, Elizabeth-street, Preston.
Parfitt, J., 27, Delph-lane, Woodhouse, Leeds.
Pritchard, T. J., 16, Howard-street, Iffley-street, Oxford.
Raper, W. T., Snaith, Yorks.
Scaife, J., 16, Westfield-view, Wakefield.
Shires, J. J., Engineer's Department, G.N.R., Stanningley, Leeds.
Townsend, J., 18, Bishopsgate, Westgate, Wakefield, and
Gorman, D., Charleroi, Washington County, U.S.

Trade News.

WAGES MOVEMENTS.

KIRKCALDY, N.B.—The operative masons who asked for an increase of ½d. per hour, as from Wednesday last, the 1st inst., have declined an offer of ¼d., with a six months' guarantee.

MANCHESTER CABINET MAKERS.—The members of the Manchester branch of the Alliance Cabinet and Chair Makers' Association held a demonstration at Belle Vue Gardens on Saturday. Marching from their Mason-street club-room to Stevenson-square, they there held a meeting, which was presided over by Mr. M. Ham, of London, general secretary of the Union, who urged combination, and assured the Manchester men of the co-operation of those engaged in the London trade. Mr. L. Remond, the Manchester secretary, detailed the grievances in connection with the practice of underselling, which tended to sweating.

NEWCASTLE-ON-TYNE.—The application made some time ago on behalf of the Newcastle, Gosforth, and District Operative Stonemason's Society to the Master Builders' Association for an advance in wages and also a reduction of hours, was finally dealt with on Saturday afternoon, when a meeting was held of representatives of masters and men. The masters agreed to concede the advance of wages asked for—namely, from 8½d. to 9d. per hour. The demand for a reduction of hours was withdrawn, as was the request that no dressed stones should come into the district.

NEWPORT, MON.—The bricklayers' strike practically closed on Monday afternoon, when the men decided to return to work on the employers' terms of 7½d. per hour, the halfpenny in dispute being submitted to arbitration. The men will return to work immediately, on condition that the employers fix a reasonable date for the arbitration, and give them an equal voting power in the appointment of the arbitrator selected.

NORWICH.—The master builders' stated on Saturday that they could make no further concessions to the men. Accordingly the Mayor at once invited the operative bricklayers and carpenters to a conference at the Guildhall. The men assembled in large numbers, the Sessions Court being crowded. The Mayor pointed out that, through his intervention, concessions had been made on both sides, and he strongly emphasised his desire now to bring about a termination of the deadlock. He had urged them, in the interests of the city, to accept the employers' terms; but, so great was the sacrifice, he was not surprised that they declined to make it. They had, however, shown such self-control, intelligence, and moderation, that he thought they would reconsider the matter. The masters had adopted a mistaken policy, and the men had not got all they were justly entitled to; but, as the latter were offered a code of rules and an advance of wages, he appealed to them, in the interests of all, to now return to work, making the best of the benefits they had gained. After a short discussion Mr. Cleverley (representative of the carpenters) moved that a vote be forthwith taken upon the

Mayor's suggestion; but subsequently the carpenters and joiners met privately and declared against the proposition.

PAISLEY, N.B.—The masons commenced to receive on Wednesday an advance of ½d. per hour in wages, raising the amount from 7½d. to 8d.

PRESTON, LANCS.—Last Christmas the Preston stonemasons gave their employers six months' notice of a demand for an increase of ½d. per hour, with an extra ½d. per hour to those engaged in setting stonework. After negotiation with the Master Builders' Association, the demands have been conceded of a halfpenny per hour advance, making the wages now 9d. per hour; but the halfpenny extra for setting has been withdrawn. The increased wage began on Wednesday.

CHIPS.

At their meeting on Tuesday, the trustees of the Campbell College, Belfast, decided to accept the tender of Messrs. Henry Laverty and Sons, for the erection of the college buildings. The contract price is £54,214, and the builders are bound to have the work completed by 1st May, 1893. The architect is Mr. W. H. Lynn, R.H.A.

The infants' school at Upper Stratton, near Swindon, is about to be enlarged by the Stratton St. Margaret School Board, at a cost of £750. Mr. H. Looker, of Stratton, will carry out the works from the designs and under the superintendence of Mr. William Drew, M.S.A., and Son, of Swindon.

The coroner's inquest on the body of Robert Nesbitt, an Ulster road-surveyor, who mysteriously disappeared last November, concluded on Tuesday afternoon in an open verdict. The police, however, believe that the man was the victim of foul play. The remains were found by some boys, on Monday afternoon, in a culvert under the main road from Belfast to Downpatrick. The police are working on a clue which they are confident will lead to the discovery of the murderer.

New bank buildings are being erected at the corner of Cowell and Stepney streets, Llanelly. Queen Anne style, they are built of red stone and red bricks, both from Ruabon. Messrs. J. Buckley Wilson and Glendinning Moxham, of Swansea and Llanelly, are the architects, and Messrs. Randell Brothers, of Llanelly, the builders.

The roof over two bays at the west end of the chancel of Manchester Cathedral has been thoroughly examined, the result being that the timbers in John Huntington's original ceiling are more decayed than was at first conjectured. At the same time it is hoped that they are sound enough to undergo the process of redressing, so that the ceiling may be retained as a momento of the first Warden of Manchester (from 1422 until 1458), and founder of the chancel itself. In order to carry out this restoration, it will be necessary to construct an entirely new chancel roof, which will form a complete support to the redressed timber work in the original ceiling.

There are now 957 street railways in the United States and Canada. Of this number 589 are worked by horses, 49 by cable, 246 by electricity, and 73 by steam. This combination of motive powers does service over 8,818 miles of track. The smallest town in the United States which has an electric street railway in operation is Southington, Conn., with a population of 5,400. The largest electric railway is at Boston, Mass.

The additions to Haileybury College, built from the designs of Mr. Reginald T. Blomfield, were formally inaugurated on Tuesday.

Lord Justice Bowen will preside at the annual meeting of subscribers to the British Schools at Athens, which will be held this (Friday) afternoon.

The death is announced from Wellington, N.Z., of William Neusham Blair, M.Inst.C.E., Engineer-in-Chief, and Under Secretary for Public Works, for New Zealand. Mr. Blair was in his 50th year.

The French School of Athens is in treaty for leave to excavate the prehistoric building at Cnossus, in the island of Crete, which Dr. Schliemann had intended to dig out, in the hopes it would prove a palace like that of Tiryns or Mycenæ.

A cottage hospital and institute is about to be built at Almondbury, near Bristol, at a cost of £4,000, borne by Mr. Sholto Vere Hare. It will be built of brick, with Ham Hill stone dressings. Mr. C. E. Ponting, F.S.A., of Marlborough, is the architect, and Mr. J. Perkins, Lower Redland-road, Bristol, is the contractor.

The reopening of West Buckland parish church after restoration took place on Friday. The church has been reseated with pitch-pine benches, the aisles have been laid with encaustic tiles, a new stone pulpit has been constructed, the old western gallery has been removed, and the west arch and west window thereby opened up, and the windows have been reglazed. The interior walls have been replastered in stucco, a new vestry has been provided, and the exterior stonework has been restored.

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TENDERS.

*** Correspondents would in all cases oblige by giving the addresses of the parties tendering—at any rate, of the accepted tender: it adds to the value of the information.

ABBEY WOOD, KENT.—For erecting a residence at Abbey Wood for Mr. J. Hickie. Mr. H. H. Church, architect Quantities by Mr. H. Strudwick:—

Balaam Bros.	£3,720	0	0
Holloway Bros.	3,584	0	0
Morter, J.	3,530	0	0
Holloway, H. L.	3,480	0	0
Chapman	3,450	0	0
Nightingale, B. E.	3,292	0	0
Strickland and Coulter	3,100	0	0

BEAUMANOR AND WOODHOUSE.—For water supply and fire protection:—

Bentley, J., Leicester	£3,105	18	6
Peattie, J., South Kensington	2,873	5	0
Biggs, J., Birmingham	2,810	0	0
Jenkins and Son, Leamington	2,756	0	0
Vickers, H, Nottingham	2,750	0	0
Price and Shardlow, Nottingham	2,711	0	0
Fotherby and Son, Burnley	2,699	8	5
Perkins, J., Loughborough*	2,487	15	0

* Accepted.

CHARLTON, KENT.—For building a dwelling-house and shop, Woodlands-road, Blackheath, for Capt. Huntley. Mr. John Rowland, 155, Church-lane, Old Charlton, architect and surveyor:—

Holloway Bros., Battersea	£1,062	0	0
Jerrard, S. J., Lewisham	954	0	0
Multon and Wallis, Gravesend	889	0	0

CHELSTON.—For the erection of a school building at Chelston, Torquay, for Mr. Richard Mallock, M.P. Messrs. J. W. Rowell and Son, Newton Abbot, architects:—

Vanstone and Mumford, Torquay	£1,380	0	0
Cocks, C., Torquay	1,353	0	0
Matthews, F., Babbacombe	1,340	0	0
McKellar, J. W., Torquay	1,339	0	0
Pack, M., Cockington	1,300	0	0
Smale, G. K., St. Mary's Church*	1,250	0	0

* Accepted.

CHERITON, KENT.—For the enlargement of premises at Cheriton for Foster's Imperial Steam Laundry Company, Limited. Mr J. Gardner, of Folkestone, architects:—

Jeal, J. J.	£2,000	0	0
Brooks, W.	1,935	0	0
Holdom, W. H.	1,890	0	0
Hayward and Paramour	1,875	0	0
Petts, J. Q., and Son	1,862	0	0
Mercer, H. R.	1,825	0	0
Prebble, G., Folkestone (accepted)	1,775	0	0

CHESHAM.—For two houses on the Stanley Avenue Estate, Charteridge-road, Chesham, for Mr. Frederick D. Clare-Draper. Mr. Geo. H. Green, Chesham, architect and surveyor:—

Hunt, C. H., Wycombe	£820	0	0
Abbott and Son, Chesham	795	0	0
Freeman, W. W., Chesham	620	0	0
Mead, A., Chesham (accepted)	595	0	0

CHESHAM.—For alterations at premises, Red Lion-street, Chesham, for Mr. Henry Newton, boot manufacturer. Mr. Geo. H. Green, architect and surveyor:—

Stone and Mead	£109	0	0
Abbott and Son	109	0	0
Boughton, W.	97	10	0
Freeman, W.	89	12	0
Mead, A. (accepted)	86	0	0

(All of Chesham.)

CLERKENWELL.—For the erection of new w.c.'s, &c., for the Parochial Schools, Amwell street, Clerkenwell. Mr. J. W. Matthews, 11, Dowgate hill, architect:—

Dove Bros	£155	0	0
Houghton, E., and Son	118	0	0
Reason	96	0	0

CROUCH END.—For alterations and additions to house, 41, Broadway, Crouch End, for Mr. J. G. Randall. Mr. E. I. Paine, 11, Great James-street, W.C., architect:—

Dixon	£650	0	0
Southcott	626	0	0
Kerry	575	0	0
Houghton, E., and Son, Stroud Green (accepted)	537	0	0

FRIENDLY, NEAR SOWERBY BRIDGE.—For new Wesleyan chapel and school. Mr. T. L. Patchet, Halifax, architect:—

Accepted tenders.

Heating apparatus:—			
Stafford, J., Sowerby Bridge	£77	10	0
Gates and railings:—			
Cronkshaw, J., and Sons, Haslingden	54	13	0
Painting:—			
Whitehead, E., and Co., Sowerby Bridge	41	8	0
Total	£173	11	0

GAINSBOROUGH.—For the erection of a malting, for Messrs. Sandars and Co., Gainsborough. Messrs. Inskipp and Mackenzie, 5, Bedford-row, London, W.C., architects. Quantities by Messrs. R. L Curtis and Sons:—

Close, H. S. and W., Lincoln	£7,258	0	0
Wright, W., and Sons, Lincoln	7,061	0	0
Pattinson, S. and W., Sleaford*	6,850	0	0

* Accepted.

HAROLD WOOD.—For the erection of a villa residence at Harold Wood, Essex. Quantities by R. L. Curtis and Sons, 119 and 120, London-wall, E.C. Messrs. Newman and Jacques, 2, Fen-court, E.C., architects:—

Hosking, G. J.	£1710	0	0
Hearle, Farrow, and Co	1677	0	0
Winter Bros.	1430	0	0
Bruty, T.	1338	14	0
Hammond, Romford (accepted)	1257	0	0

HAVERSTOCK HILL.—For sundry painting works and repairs to the Fever Hospital, Haverstock Hill, for the Metropolitan Asylums Board:—

Graham & Graham, Portland-place	£440	0	0
Foulkes, J., Tooley-street	250	9	0
Rowe Bros., Camden Town	196	0	0
Mills, W. and E., Westcombe-park	195	0	0
Glover, F., Hampstead	179	15	0
Seed, R., Chiswick	169	11	0
Wall, G. A. and H., Kentish Town	145	0	0

HOLLESLEY.—For additions to the Colonial College and Training Farms, Hollesley, Suffolk. Messrs. Giles, Gough, and Trollope, architects. Quantities by Mr. Charles H. Goode:—

Grimwood	£3,660	0	0
Girling	3,458	0	0
Adams	3,385	0	0

ISLINGTON.—For the erection and completion of shop premises and flats, 154 and 155, Upper-street, Islington, for Mr. John Nobbs. Mr. W. H. Boney, 32, Fleet-street, architect. Quantities by Mr. E. S. Gale, Falcon-court:—

Dearing and Son	£2,320	0	0
Maide and Harper	2,256	0	0
Holloway Bros.	2,184	0	0
Houghton, E., and Son, Stroud Green (accepted)	1,972	0	0

LEYTON.—For the erection of the Lea Bridge road Schools and caretaker's residence, for the Leyton School Board. Quantities by R. L Curtis and Sons. Messrs. J. T. Newman and Jacques architects:—

Scott, S. J.	£4545	0	0
Catley, J.	4532	0	0
Wood, F. F. and J.	4513	0	0
Holland, J.	4498	0	0
Reed, A.	4424	0	0
Morter, J.	4389	0	0
Coxhead, F. J.	4347	0	0
Gregar, W., and Son, Stratford*	4227	0	0

(* Accepted, subject to approval Education Department.)

LIVERPOOL.—For alterations to Pembroke Baptist Chapel for the Rev. C. F. A. Kid, pastor. Mr. J. W. Auger, 3, North View, Edge Hill, architect:—

Thomson, W., and Son	£850	0	0
Morrison and Son	826	0	0
Haigh, Thos.	819	0	0
Brown and Backhouse	795	0	0
Tomkinson, W., and Son	793	0	0
Holme and Green	785	0	0

LONDON.—For alterations, &c., to No. 23, St. Mary Axe, E.C., for the City of London Real Property Company, Limited. Mr. R. B. Marsh, architect. Quantities by Messrs. Campbell and Son:—

Greenwood, J.	£1,720	0	0
Ashby and Horner	1,707	0	0
Lawrence and Son	1,650	0	0
Kilbey and Gayford	1,464	0	0
Nightingale, B. E.	1,438	0	0
Holloway Bros.	1,429	0	0

LONDON.—For the erection of stables and cart-shed at New Cross-gate, S.E., for Mr. S. J. Clegg. Mr. Fred. G. Grierson, architect, 9, Old Jewry-chambers, Cheapside, E.C.:—

Watt, J.	£253 12 0
Watts, C.	190 0 0
Evans and Co.	175 0 0
Tunbridge, W.	165 0 0
Oldman, J. and A.	162 0 0
Courtney and Fairbairn	159 0 0

LONDON.—For the erection of new dye-houses at Rudford Leather Works, Rotherhithe, for Mr. F. G. Armfield. Mr. Fred. G. Grierson, architect, 9, Old Jewry-chambers, Cheapside, E.C.:—

Messrs. Courtney and Fairbairn (accepted).
(No competition.)

LONDON.—For the erection of carriage-builder's shop and showroom, High-street, Lewisham, for Mr. Buck. Mr. Fred. G. Grierson, architect, 9, Old Jewry-chambers, Cheapside, E.C.:—

J. Watt, Catford (accepted).
(No competition.)

LONDON.—For erecting proposed premises in Roseberry-avenue, for Mr. T. W. Debenham. Messrs. T. Chatfeild Clarke and Son, architects. Quantities by Messrs. Leonard and Clarke:—

Cox	£2,698 0 0
Holland and Hannen	2,610 0 0
Ashby and Horner	2,594 0 0
Colls	2,582 0 0
Woodward	2,570 0 0
Lawrence	2,511 0 0
Toms	2,418 0 0
Shurmur	2,394 0 0
Scrivener	2,392 0 0
Hall, Bedall and Co.	2,390 0 0
Ashby Bros.	2,387 0 0
B. E. Nightingale	2,316 0 0

LONDON, N.W.—For rebuilding Farley Cottage, Church-lane, Hampstead, for Mrs. Emma Sell. Mr. Albert E. Pridmore, M.S.A., F.S.I., 2, Broad-street-buildings, E.C., architect:—

Hudson, W. A. (accepted) ... £655 0 0
(No competition.)

NEATH.—For villa residence at Neath, situated near the Gnoll. Messrs. J. Buckley Wilson, F.R.I.B.A., and Glendinning Moxham, M.S.A., architects:—

Jones, D. C., and Co., Gloucester ... £1,162 7 9
(Accepted).

NORTH TYNE.—For additions of chancel to Falstone Church, North Tyne. Messrs. Plummer and Burrell, Newcastle-on-Tyne, architects:—

Martinson and Wilton, Billingham, North Tyne (accepted).

NEWTON ABBOT.—For the erection of a semi-detached pair of houses adjoining Torquay-road, Newton Abbot. Messrs. J. W. Rowell and Son, Newton Abbot, architects:—

Mills, Wm.	£898 0 0
Stacey, F. A.	790 0 0
Zeally, J.	780 0 0
Barrow, F.	594 0 0

(All of Newton Abbot.)

PORTSEA.—For new piggery for 100 pigs (including stores, slaughter-house, drainage, and yards), and other works, at the Union House, Milton, for the Portsea Island Guardians. Mr. R. J. Jenkins, M.S.A., architect. Quantities supplied:—

Spriggins, Messrs.	£2,050 0 0
Hall, T. P.	2,000 0 0
Learmouth	1,994 10 5
Dye, C.	1,930 0 0
Bowler, T.	1,915 0 0
Porter, E. A.	1,880 0 0
Boulton, H. F.	1,810 0 0
Jerome and Bone	1,804 0 0
Scammell and Dowdell (accepted)	1,735 0 0

SALTASH.—For the erection of a police station, for the Cornwall County Council:—

Williams (accepted) ... £1,070 0 0

SOUTHAMPTON.—For constructing a boundary-wall around the open swimming-bath and premises:—

Morgan, Isted, and Morgan	£294 0 0
Roe, J. W. and Co.	290 0 0
Crook, J. and Son, Southampton*	279 0 0

* Accepted.

SWANSEA.—For arcade business premises, Goat-street, Swansea. Messrs. J. Buckley Wilson, F.R.I.B.A., and Glendinning Moxham, M.S.A., Swansea, architects:—

Bennett Bros., Swansea	£5,950 0 0
Billings, H., Swansea	5,565 0 0
Stevens, F., East Grinstead	5,359 0 0
Jenkins Bros., Swansea	5,200 0 0
Williams, J. D., Knighton	5,099 0 0
Jones, D. C., and Co., Gloucester	4,949 0 0
Gustavus Bros., Swansea*	4,915 0 0

* Accepted.

SWANSEA.—For additions and alterations to Killay House, near Swansea. Messrs. J. Buckley Wilson, F.R.I.B.A., and Glendinning Moxham, M.S.A., Swansea, architects:—

Billings, H.	£880 0 0
Gwyn, J.	851 0 0
Jenkins	850 0 0
Gustavus Bros.	768 0 0
Palmer, G., Neath (accepted)	750 0 0

(The rest of Swansea.)

SWANSEA.—For erecting higher-grade school. Mr. T. P. Martin, architect and surveyor:—

		Alternative
Billings, H.	£7,225 10 0	£6,775 10 9
Richards, T.	8,200 0 0	8,370 0 0
Jenkins, Bros.	6,829 0 0	*6,783 3 0
Jones & Co., Glo'ster	7,701 0 0	6,891 0 0
Williams, Knighton	7,830 0 0	7,279 0 0
Bennett, Bros.	8,654 0 0	6,335 10 0

(The rest of Swansea).
* Accepted.

SWANSEA.—For St. Mark's Vicarage, near Swansea, for Rev. S. Meredith Williams. Messrs. J. Buckley Wilson, F.R.I.B.A., and Glendinning Moxham, M.S.A., Swansea, architects:—

Williams, J. D., Knighton	£1,330 0 0
Palmer, G., Neath	1,300 0 0
Watkins and Jenkins, Thomas	1,267 10 0
Bennett Bros.	1,200 0 0
Walters, Charles	1,131 0 0
Richards, S.	1,122 14 6
Weaver Bros.	1,089 0 0
Billings, Henry	1,045 0 0
Gustavus Bros. (accepted)	1,015 0 0

(The rest of Swansea.)

SWANSEA.—For cottage sketty near Swansea. Messrs. J. Buckley Wilson, F.R.I.B.A., and Glendinning Moxham, M.S.A., Swansea, architects:—

Billings, Henry, Swansea	£270 0 0
Gwyn, J., Swansea (accepted)	267 0 0

SWINDON.—For the enlargement of the Upper Stratton Infants' School for the Stratton St. Margaret school board. Mr. William Drew, M.S.A., and Son, 22, Victoria-street, Swindon, architects:—

Barrett, T., Swindon	£780 10 0
Wiltshire, G., Swindon	775 0 0
Looker, H., Stratton (accepted)	750 0 0

TEIGNMOUTH.—For building six houses and shops in Wellington-street. Mr. G. S. Bridgman, V.P.S.A., of Torquay, architect:—

Lee, G., Teignmouth	£5,421 0 0
Mills, W., Newton Abbot	5,124 0 0
Andrews, E., Teignmouth	5,012 0 0
Lamacraft, J., Dawlish	4,999 0 0
Stacey, F., Newton	4,895 0 0
Yeo, R., Torquay	4,425 0 0
Bovey, E., Torquay	4,400 0 0
Westlake, E., Paignton	4,250 0 0
Rabbitch and Brown, Paignton	4,000 0 0
Hayman, S. J. W., Teignmouth	3,893 0 0
Webber, H., Paignton	3,700 0 0
Bridgman, M., Paignton	3,675 0 0

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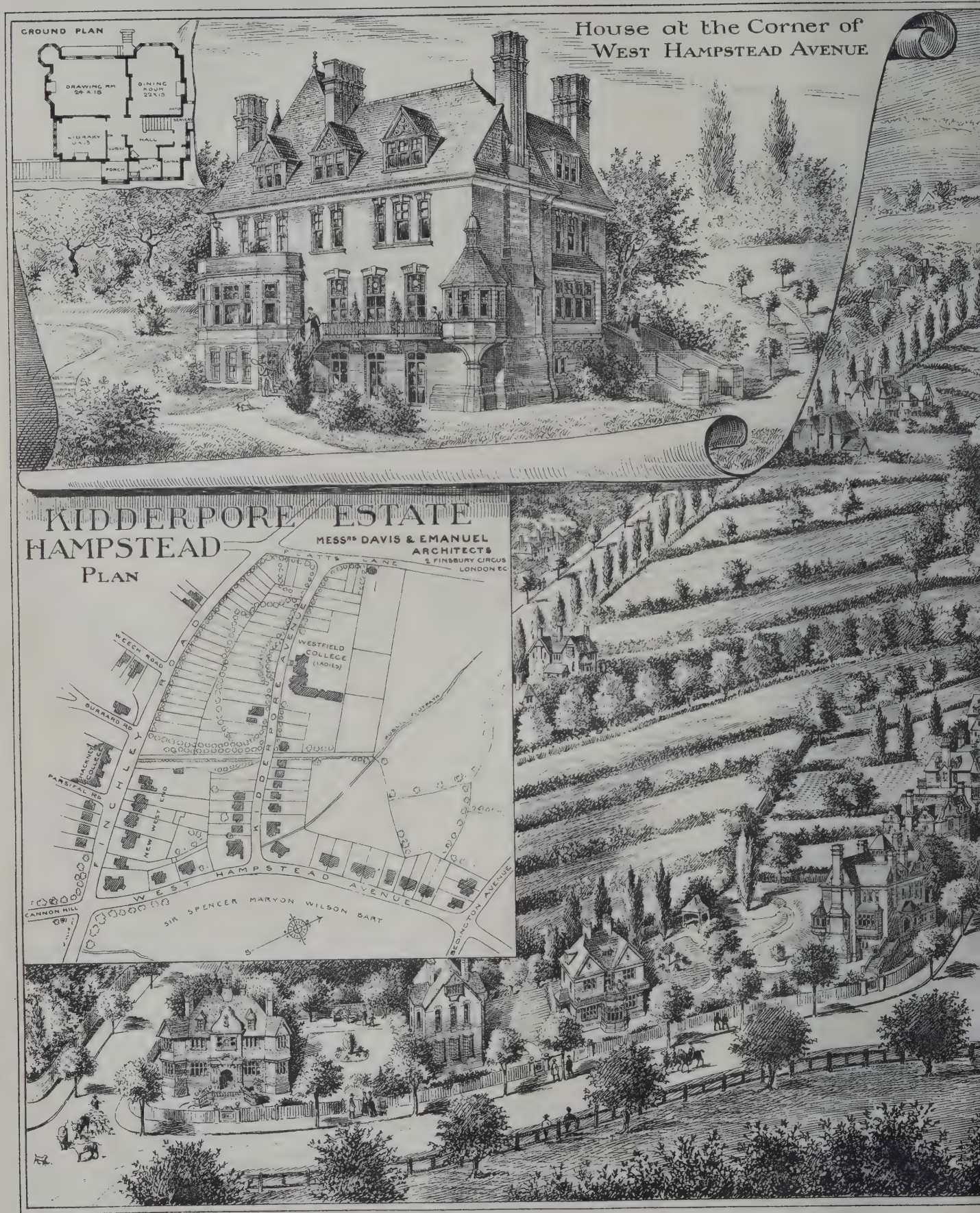
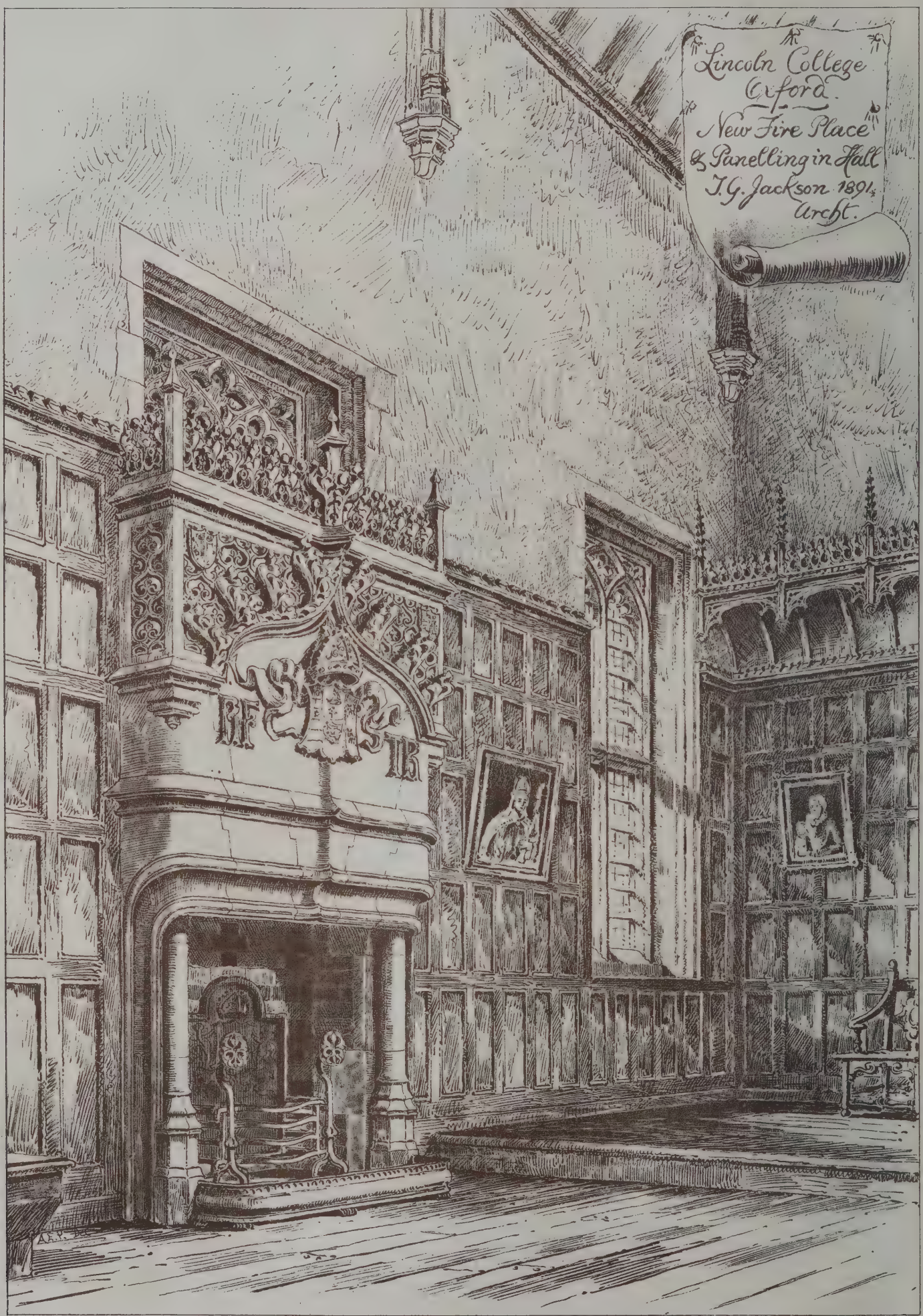

GROUND PLAN
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DINING ROOM 22 x 13
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HAMPSTEAD
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WESTFIELD COLLEGE (LADIES)
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PARSIFAL RD
NEW WEST END
WEST HAMPSTEAD AVENUE
CANNON HILL
SIR SPENCER MARYON WILSON BART
EDGWARE ROAD
KIDDERPORE AVENUE
FINCHLEY ROAD
BROMPTON AVENUE



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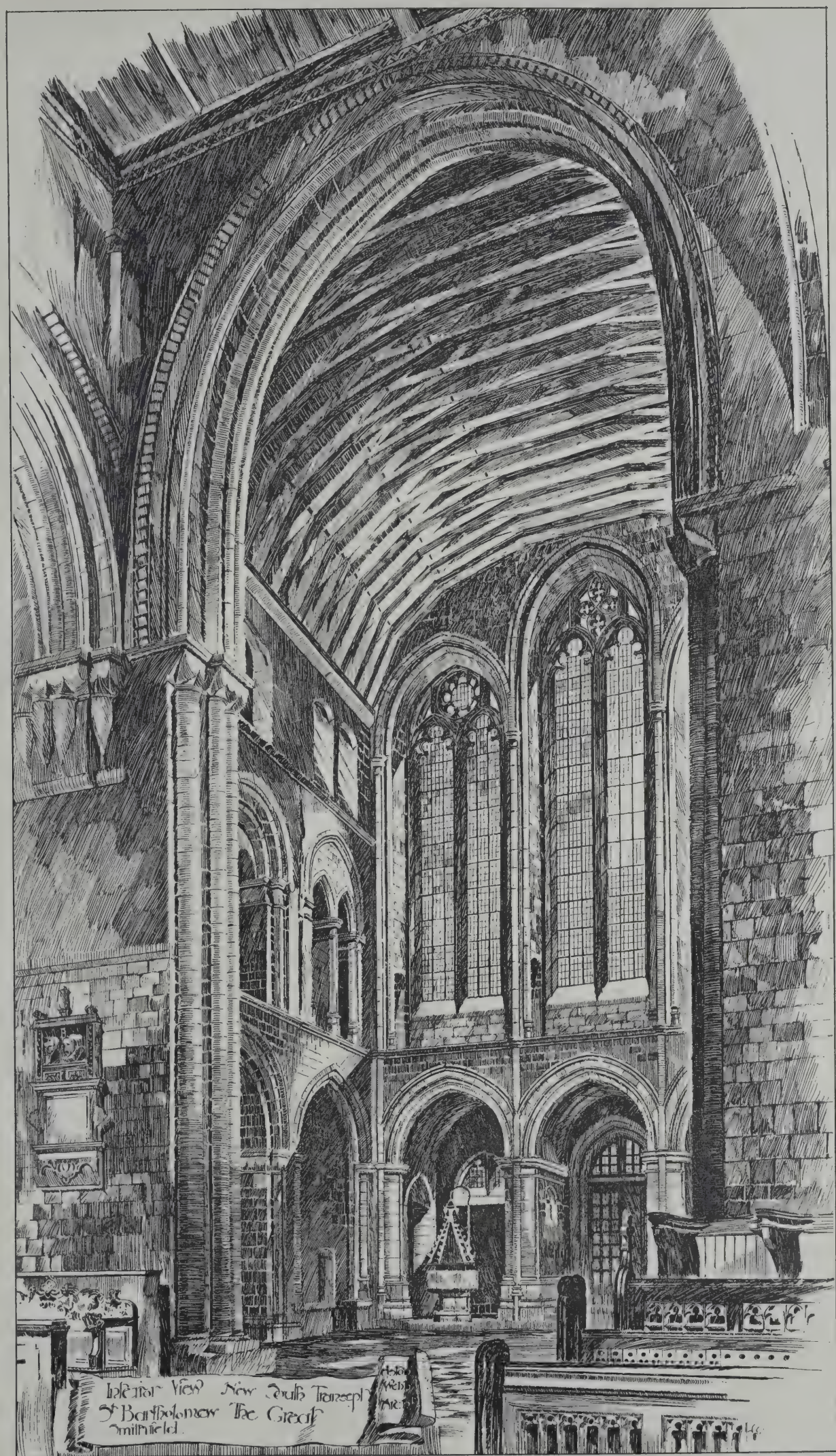


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THE BUILDING NEWS
AND ENGINEERING JOURNAL.
VOL. LXI.—No. 1905.

FRIDAY, JULY 10, 1891.

BURY MUNICIPAL BUILDINGS AND MARKETS.

BURY, the busy and thriving Lancashire borough, is about to emulate other greater towns of the North in the erection of municipal buildings and markets that, for size and completeness, will compare with those of Bolton, and even of Manchester. To the competition invited by the Corporation of Bury for designs, a numerous and able response has been made, no less than 37 sets of plans of more than ordinary merit for the municipal offices having been received, and are now on view at the Corporation offices. Mr. J. Murgatroyd, F.R.I.B.A., of Manchester, was appointed assessor, and his decision appears, on the whole, to have left cause for little dissatisfaction. The 37 sets were, after considerable study, reduced to eight for further examination. To prevent any possible miscarriage, the assessor ordered that the mottoes should be covered over by a label with a number, and this plan has been carried out. The first premium of £150 has been awarded to No. 17, "Donovan," by Mr. A. N. Bromley, F.R.I.B.A., Nottingham; the second, of £100, to No. 41, "M" in circle, Mr. H. T. Hare, A.R.I.B.A., London; and the third premium of £50 to No. 27, "Rectus," by Messrs. Everard and Pick, of Leicester.

The obtuse-angled triangle formed by the three streets which surround the site intended for the municipal buildings, has been skilfully turned to account by several of the competitors, some taking Mr. Waterhouse's admirable plan of the Manchester town-hall as the principle of distribution, others exercising their own ideas as to the filling-in of the central area formed by the surrounding blocks. The Market-street frontage being the longest of the three, has been generally made the principal façade (some few adopting the Haymarket-street), the remaining sides of Moss-lane and Haymarket-street forming an obtuse angle between these two streets, which we may designate the "apex" of the triangle. Nearly all the competitors have disposed their blocks of offices around the streets or triangle, with corridors of access along the inner sides, lighted from a central court or courts, while the central area has been utilised as the site for either police-court, council-chamber, or both. It is unnecessary to lay down here any principle, though the centre-court position has the advantage of being retired and quiet for the functions carried on in those important departments; on the other hand, we thereby lose the value of making either the court-house or council-chamber an external feature. In disposing these two blocks various plans have suggested themselves to the authors—some adopting an axial or symmetrical arrangement, others squeezing them into the area without regard to any rule. The importance of placing the police cells within the central area, and of making a van entrance into it, cannot be over-rated; again, this open space affords a capital space for the principal staircase, and for the blocks of lavatories. Many of the authors have sacrificed the area by crowding it with various apartments, leaving small and irregular wells for light; one has adopted the plan of placing the court and council-chamber parallel to the side blocks. As regards cost, the sum of £60,000 for the building and sculptural decoration, but exclusive of internal decoration and fittings, was laid down as the limit, though many have far exceeded that amount. The style adopted by the majority of competitors is some phase of French or English Renaissance; a few have adopted Gothic, fewer still Classic. Considering the triangular disposition of the blocks and the acute angles, the Renaissance or Gothic appears to be the most suitable. The assessors' predilections have certainly agreed with the general preference.

The first premiated design (by Mr. A. Nelson Bromley, of Nottingham) has undoubtedly many excellent points of plan. The triangular area of the site has been well utilised without waste, and the main departments placed in convenient proximity, yet with due attention to their separation. Taking first the ground plan, the main entrance is in the centre of Market street front; the staircase-hall is well lighted by the side courts; the waterworks department is on the left of entrance, then follow the medical and school departments at the angle of Moss-lane and Market-street. On the right side of entrance is the borough treasurer's office, including angle of tower; the gas department is on the Haymarket-street side, and the police yard entrance on Moss-lane side of triangle, another entrance being at the apex of the two sides. The corridors are 7ft. in width, and are well lighted from the courts. As Mr. Murgatroyd points out, the water and surveyor's departments are too much separated. On the first floor, the reception rooms occupy the central part of the Market-street front, and form an emphasised centre to this façade. The council-chamber occupies the middle of the interior area, out of the noise of the streets, and leaving areas for light and air. It is placed with its axis parallel to the Market-street side, and is in direct communication with the reception room, the main staircase between, and the cloak-rooms. The police-court is at the south of reception room, its end lighted from Market-street, and the magistrates', solicitors', and witnesses' rooms are in connection with it, and form the corner block, having frontages in Market-street and Moss-lane. The court is approached by a wide corridor along the Moss-lane block. The building inspector is near the angle on the last-named block, the surveyor has the corner, and the committee-rooms follow, facing Haymarket-street, the town clerk occupying the whole of the angle between this and front side, including the octagonal room of tower. The kitchen, offices, supper-room, and drawing offices are placed on the second floor. In the basement are the health and water offices, the police covered shed, cells, gas, weights and measures, borough treasurer, and stores. One of the desirable points of the plan is the van entrance into courtyard, by which the prisoners are enabled to be quietly transferred to and from the van. In addition to the main entrance, a public entrance is placed at the Moss-lane corner, another at the angle between Moss-lane and Haymarket-street, and a third entrance in the middle of the latter street front. The style partakes of a Renaissance character with Flemish features; the windows of the reception-room are elliptical headed and traceried; there is a gabled centre and flèche, and this central portion of the market street façade is flanked by turrets, corbelled at the angles. The side-wings are broken, and a lofty octagonal tower, not included in the estimate, is at the north angle. The Moss-lane elevation is plain; the council-chamber at top has a flat ceiling, with side windows; the police-court is top-lighted by a lantern.

The second premiated design (Mr. Hare) has also a well-arranged and grouped plan; the departments are distinct and placed in suitable positions, except the surveyor, whose department on the second floor is out of the way. The ground floor shows a centre entrance, with the water department to the left and the borough treasurer's on the right. There is a public entrance to rates office from Haymarket-street, also to gas offices. The chief constable occupies the apex between Moss-lane and Haymarket-street. The entrance hall, with cloak-rooms, &c., form a central block having three small areas. The borough treasurer's corridor appears inadequately lighted through the rates office. On the upper floor the council-chamber is placed in the centre of site, its axis at right angles to Market-street, dividing the space into two large triangular areas or courtyards; the reception rooms are an ample and splendid suite of apartments facing that street; the police-court and magistrate's rooms front Moss-lane, and the town clerk's offices the Haymarket front. The corridors are not so happily treated as in other plans: there is no police-van entrance. Both the surveyor and the remainder of the town clerk's offices are on the second floor. The council-chamber has a coved ceiling with raised flat ceiling; air-flues and shaft for ventilation are shown over it; the lavatories are located under the sloped gallery. Externally, the design is represented by an elaborately-drawn set of elevations in ink, Renaissance in style. The main façade, well broken in plan, has an imposing balanced centre and wings, the centre block with a high roof and bold turret or flèche, and three ornamental gables; the wings are low and well-broken in outline, the corners are octagonal in plan, carried up as towers with low roofs and arcaded sides. The windows are large and mullioned, of Late Gothic feeling. An effective perspective of principal front is sent, and some good details are shown.

The third design, by Messrs. Everard and Pick, shown by a tinted sepia elevation, is plain, and well treated in the same style, with high roofs, and French in general character, but without a tower. The centre of main front is rather short; there is an order of columns to the first-floor story. In plan the authors have shown a simple and skilful adaptation. The corridors are continuous and parallel to the three blocks; that along the main front has an entrance at each end, which is certainly an improvement on the stopped end arrangement adopted by so many. A centre entrance and hall, lighted by court, gives access to water department, school offices at angle, on left to gas department. Along the Moss-lane front are placed the rates offices, large collection room being on the inner side of corridor, lighted by central court. In the Haymarket-street block are the police offices and cells, the latter corresponding to the rates collecting office, also lighted by court. There are four good courts. The suite of reception-rooms on the first floor are in the front block, the police-court is placed over the cells behind the Haymarket-street block, and thus retired from the street, with the solicitors' and witnesses' rooms fronting that street, and the town clerk's offices and council chamber over the Moss-lane block. The council chamber over the rates office is quiet also. Well-lighted corridors, courts, and division of departments are secured, the angle staircases at the end of corridors and the architectural character of the plan generally are commendable. The borough surveyor is at the obtuse angle. The second floor has the surveyor's drawing-office and the other rooms of the town clerk, the caretaker being located in the upper floor of centre front block. The medical officer and inspector would have been better placed on the ground floor instead of in the basement.

Five designs have been commended by the assessor. One of these, "Gladys," by Mr. H. A. Matear, Liverpool, has a fairly good plan and artistic treatment; but we do not like the broken angle between the health and water-office departments at the obtuse angle. The rates office block placed across the central area obliquely is awkward. The principal

entrance is in the centre of Haymarket-street side, adjoining which are the cloak-rooms and committee-rooms; the borough treasurer is placed in the Market-street block, and occupies a position that would be better given to the town clerk. The police and health departments, separated by an entrance, are in Moss-lane. The council-chamber is over the water offices at the apex, the police-court in Moss-lane, the reception-rooms front Haymarket-street, the town clerk's offices Market-street, and the surveyor at the corner of Moss-lane and Market-street. The corridors are well lighted, but the areas and angles are awkward. The elevations are in a kind of mixed Romanesque and Renaissance features, clever and dignified, especially the Haymarket and Market-street fronts, with their lofty tower. The corner view of this tower is effective. The first-floor windows are round-arched, with central gable and high roof. The corner sketch on the frame is pleasing. "Spero," by Mr. Chas. Bell, London, is Renaissance of a type common in London, rather too Domestic in type, with a lofty corner tower near north angle. The plan has merit, despite its small central court and central corridors. The main entrance is in Haymarket-street. "Sanglier Range," by Chorley and Connon, Leeds, is a geometrically-balanced plan, with a quadrant-shaped arrangement of buildings towards the obtuse angle. The first-floor plan shows the Market-street front, devoted entirely to the suite of reception-rooms, and council chamber, a long, parallel corridor traversing the whole length of block. The town clerk's offices form one of the quadrant blocks, and the surveyor the other; the police-court occupies the centre at the obtuse angle, and forms an elongated octagon flanked by circular stair turrets, surmounted by conical spires. The elevations toward the side streets are irregular; the circular towers rise at ends of main front with conical spires, resting on open peristyles. The front has a broken gabled façade. "Mind and Work," by Messrs. Morley and Woodhouse, Bradford, is the motto of an elaborate set of elevations, executed with extreme delicacy of detail; but the grouping of gables and the repetition of windows are not pleasing on the whole, and there is a want of breadth and rhythm—a corner tower is shown. The plan has some good details; but the areas for light are restricted, and the central space is too much filled up. The main entrance is in the centre of Haymarket-street, and grand stairs behind; the treasurer is on the right hand, the water on the left, police and gas being located along Market-street—questionably we think. On next floor, the reception-rooms front Haymarket-street, the council-chamber at one end. The police-court is over the parade, and cells are in centre of site. The surveyor's offices front Market-street. The inquiry office and drawing office in this and other designs are unnecessarily close, as it is found that inquisitive ratepayers are often unwelcome intruders in the drawing department. The "plan" room for storage of drawings is also too small, and the corridors might be improved in their lighting. "Sub Spe" (Mr. F. S. Tulloch, London) is a symmetrical plan with wide lighted corridor round the central court, a main entrance from Market-street, having the offices of treasurer on right, those of water and gas on left, with the police department at the apex of triangle, and police-court above. The reception rooms are in front above, with council chambers, and in Moss-lane block the offices of town clerk, and on the other side the surveyor. The front elevation is dignified, Renaissance in style, having a high hipped roofed centre block with flèche, terminated at the angles by ogee-shaped domical roofs and flanking turrets in pairs on either side of centre. The detail is refined, and there is a pleasing breadth, but the windows are narrow and small for offices and reception-rooms, especially so in the Haymarket-street front.

We think one or two excellent designs might have been included in the list of "commended." One of these is "Lancashire," the authors Messrs. Mawson and Hudson, Bradford, a design with a clever and broadly-treated front elevation, the proportions of piers and apertures rhythmic and pleasing. A well-proportioned campanile rises near one end of the main front, modelled after the Giralda at Seville. The plan is less happy. The front block corridor is broken at the hall, so the continuous promenade is lost. Three angle entrances are shown. The rates and police departments are not the most desirable to occupy the Market-street block, which they do here. The council chamber is placed in the centre of the triangular area, parallel to the reception-rooms, which occupy a considerable part of the main block, divided by the tower from the police department at the south end of the same block. The borough court is placed rather awkwardly at right angles to the main block, the end abutting on Moss-lane. Some finely-executed drawing of details is shown; the council chamber has a flat segmental ceiling of plaster. "Municipal" (Messrs. Brook and Langham), shown by a bold corner perspective of plain Renaissance character, is another able design. The circular corner entrance with tower in Market-street is a departure from other treatments. The treasurer's offices face Market-street, the health at the left end, and police at the apex and sides. The octagonal police-court at apex on the first floor, with high pyramidal roof, is a feature; the corridors are fairly lighted. The council chamber is on centre of site. Other designs can only be glanced at here, though some of them possess merit of a high order. "Neloah" is a fairly-balanced arrangement of departments; but the side corridors are bent at ends into main corridor—a weak point. The cells form a keystone-shaped block at the apex of triangle, with treasurer on right, water and gas offices on left of Market-street entrance. The style is Gothic, but unsatisfactory in the elevation. "Industria" is rather awkward in the massing of departments; a huge centre tower rises in Market-street, a little overpowering; the style is of the usual Renaissance, and a clever perspective and drawings are sent in. "Red Tape" has areas for light too small; the council chamber is semicircular and in the centre of side, but there is a want of architectural arrangement. "Civitas" is a French Classic treatment, but of poor proportions, with indifferent plan. "Justice," in a circle is elaborate, but rather too complicated in plan. "Red Rose," "Facility," "Briar Rose," "Lux," "Light," have more or less ability, but lack coherency in the arrangement of departments, or are too crowded in the centre. "Jam Satis" is in quiet Renaissance, but the areas in centre are small and crowded, and this fault of crowding is discernible in "Usui Civium, &c.," "Lege," "A" in circle, "Stability," and several others. A clever sepia sketch is sent with "Simnel," but the elevation lacks coherency and character, and the corridors are ill-arranged and dark. The fault of imperfect light is general; in many of the plans the departments are not sufficiently separated, or are too crowded. Many of the authors have failed to provide suitable positions for the lavatories and closets, or have placed them rather objectionably close to offices, instead of arranging them together in the courtyards. The approaches to the reception-rooms and court should be ample and commodious, the departments sufficiently distinct and easy of access, and these are points that have fairly been kept in view by the authors premiated.

With regard to the materials, the author of the first premiated proposes to use a selected kind of Derbyshire stone, and to place the whole on a rusticated basement, to prevent injury and disfigurement. Polished granite will be used for the entrance pilasters; the roofs are to be covered with green Westmorland slates; and the large flats to be covered by asphalte upon concrete and iron. Terracotta is specified to be used in the entrance-halls and staircases, and glazed brick is proposed for the linings of the police-court, staircase, and gallery. The upper part of the tower is not included in the cost of £60,000. The author of the second premiated design proposes to use Yorkshire stone for the facing of the three fronts, the roof to be of green Westmorland slates, and the turrets of copper. The floors are proposed to be fireproof, with steel joists and concrete, the internal courts lined with glazed bricks. Rangoon teak and other hard woods are specified for the panelling of the state rooms, and American walnut for the dado to rates office.

The markets and abattoirs, for which premiums of £75, £50, and £25, were offered, are represented by a dozen designs, a few of them of much merit as architectural renderings of a very unpromising kind of problem. Mr. Murgatroyd remarks on the study given to markets, especially to abattoirs, on the Continent, and he finds traces of this study in two sets of designs. Overhanging roofs, and cool, brick-vaulted or double-roofed buildings for slaughtering are generally adopted. One of the important points of the plan is the desirability of providing convenient roadways for access and egress. The site selected is at one end of the land for the municipal buildings, and separated from it by Moss-lane. The requirements were for a general and fish market, which are to be contiguous, though separate, with entrances between, chiefly from Moss-lane; the abattoirs, in addition to the slaughter-houses and lairs for cattle, had to contain a slaughter-house and lairs for pigs, for condemned carcases and live cattle, stores for skins and hides, &c. The assessor has awarded to "Northern Light" (Mr. Archibald Neill, of Leeds) the first premium. The character of the elevations and the general grouping of the buildings are meritorious, and are shown in some effective elevations in chalk and India ink. The shops along Moss-lane are of two stories; the upper one may be approached by a gallery behind. The subdivision of the area in this plan is perhaps expensive in forming so many roofs, though artistically this is a merit. The central area of market is set apart for vegetables and fruit, the sides for poultry and game, bacon, eggs, &c. Lock-up stalls for butchers, dry goods, cloth, &c., are between these divisions, with gallery above for storage and sale. The retail fish market is at the side, with inclined roadway. An octagonal dome of iron, with gallery round upper floor, is shown. The abattoirs have suitable inclined approaches, with stores below. There are three ranges of blocks, a lair and slaughter-house, with ventilating passage between, and a verandah-sheltered avenue on each side of central meat store. The roofs have raised skylights and projecting verandahs to keep the walls of meat-store cool. The second premiated design, "Poleaxe," by Messrs. Lewis, Hornblower, and Son, Liverpool, has a Continental arrangement of abattoirs; the general market, with arched roof of timber and iron, has well-arranged stalls, &c., and tasteful elevations of Italian design. The third premiated, "Experientia," Mr. Harry B. Buckley, Leeds, shows the general market on the right-hand side, surrounded by shops, with three rows of stalls for bacon and cheese, crockery, poultry, boots, flannel and fancy goods, fruit, and vegetables. The roofs are in two spans, top-lighted, and the shops have rusticated treatment. The lairs are at right angles to the slaughter-houses, and the

author has shown the whole surrounded by roads and an incline to railway, which has thus reduced the area allowed on the plan. A clever sepia sketch is shown by "Utility"—the market has three elliptical spans, with surrounding shops, and the elevation is appropriate.

THE LOCK-OUT OF LONDON CARPENTERS.

AS the Central Association of Master Builders declined last week to enter into negotiations for a settlement in the building trade, ostensibly on the ground that the United Trades Committee had used threats, subsequently modified to objection to the "unconciliatory tone" of the committee's letter, the men were drawn out on Saturday from twenty-nine firms who had abstained from taking part in the lock-out, and who employed about a thousand men. Of these firms, however, ten have since expressed their willingness to grant the eight-hours' day and 10d. an hour asked for by the men, so that only about 650 men, employed by the remaining nineteen firms, have been added to the number to be supported out of the strike funds. Mr. E. Jowett, of Palace-court, Bayswater, who locked out, has conceded the advance, as have also Messrs. Hellis and Turner, of Brompton-road, who have hitherto taken no action.

About four thousand men are now out on strike or locked out, and they were paid on Saturday at the rate of 11s. each per week for non-society men and 5s. 6d. for society men, who also receive 15s. each from their trade-unions.

The strike committee have received this week £190 from the Operative Bricklayers' Society (their first levy), National Association of Operative Plasterers £100, £53 10s. from Manchester and Salford, and other amounts, in all reaching £430 more, from outside districts.

Considering the large number of men involved in the dispute, the charges of intimidation and molestation during the nine weeks the struggle has lasted, have been singularly few. On Monday, however, Thomas Gibson, a carpenter on strike, was committed for trial on bail from the Westminster Police-court, for having threatened a workman named William Hayward, in the employment of Messrs. Mowlem and Co., of Grosvenor-road, Pimlico, one of the three firms at which the strike originally took place. At the same police-court James Curran has been remanded till to-day (Friday) for persistently following Alfred Capps, a joiner in the employ of the same firm, and summonses have been granted against several men on strike, returnable at Marlborough police-court, for molesting men imported from Brighton, and employed by Messrs. Simpson and Co., of Paddington, in Berkeley-square.

It is stated that the joinery for the restoration of the Wesley Chapel in the City-road is being worked at Devizes, where the rate of pay is 7d. per hour.

A strike in the building trade commenced on Saturday at Cambridge. The men seek an increase of wages and a new code of working rules. The masters have offered to meet them on the former, but insist on their own code being followed. About 300 men are affected. At Halifax the plasterers have been on strike for seven weeks for an advance on the 7d. per hour. At the quarterly meeting of the joint committee of the master plasterers of Edinburgh and Leith, and the operatives, it was mutually agreed that the pay of the operatives should be increased ½d. per hour. The increase will take effect on January 4th, 1892. At Warrington, ¾d. rise has been granted, raising the wages from 7¼d. to 8d. At Hull the carpenters have secured from the employers an advance from 7½d. to 8d. per hour as from September 1st, and also revised working rules; and similar advances of a half-penny have been given in Swansea, Gravesend, Darlington, Malvern, Castleford, and Nuneaton, while at Londonderry the hour system has been substituted for that of day labour, the rate of pay agreed on being 6d.

Last week a stained-glass window, designed and executed by Messrs. Barnett and Son, was inaugurated in the Catholic Church of Workington. The window of five lights is over the high altar. The subject is Our Lady Star of the Sea.

WAYSIDE NOTES.

THE public are, naturally enough, nervous just now on the subject of railway bridges. The frequency with which questions are put to the Government in the House of Commons testifies to a certain uneasiness of mind and apprehension of possible evil. Since the accident at Norwood, there has been a rude awakening to the fact you pointed out repeatedly years ago—that railway bridges are not more eternal than any other work of human ingenuity. Sir John Fowler's report to the directors of the Brighton Company has not tended to increase the feeling of security; rather has it done the reverse. It is true that the report suggests that there is no immediate danger in the condition of any of the bridges; but the public will forget this portion of the report, and look only to the fact that some eighty bridges require to be reconstructed within the next two or three years, and that twenty of these should be completed within one year. I daresay that, from this, vast numbers of persons imagine that there are twenty bridges on the Brighton Company's system of lines whose condition is little short of rotten. Such a conclusion, however, is perhaps unjust to the Company. As Sir John Fowler says in his report, the bridges on the Brighton line are neither better nor worse than those on other railways at home and abroad. This, at the same time, constitutes no excuse for delay in making the improvements recommended in the report. Until these are completed, the travelling section of the community will not be reassured. I hope the other companies will not make the holiday-makers pay for the repair of the bridges, as the Brighton Company seem to be doing.

The British public are wonderfully confiding in our engineers, and so long as the confidence is deserved it is a good trait in the national character. I verily believe that patrons would not be wanting for the maddest scheme that could be put forward. There would be a rush for any newly-opened means of transit through earth, air, or water, short of a Jules Verne system of communication between the earth and the moon. From this fact I would deduce the theory that the public of itself would not find out, in good time, weak points in the design of the permanent way of existing railways. It is therefore the duty of those at the head of national affairs to give this question timely consideration. According to a statement of its president, the Board of Trade have no power to order the reconstruction of railway bridges. Sir Michael Hicks Beach contemplates the issuing of a circular to railway companies, calling attention to the matter, but such a step does not seem very drastic. Up to a certain point we may be sure that a railway company would look to the safety of all its arrangements, seeing that otherwise it is incurring additional risks of heavy damages for injuries to passengers. A circular, therefore, would seem of little good. What is really wanted is some inquiry into the behaviour of bridges of various construction under the varying conditions pertaining to railway locomotion. Upon the results of such an inquiry could be founded a set of regulations relating to the methods of constructing bridges of iron or other material. We have Royal Commissions on trivial things enough in these days; why not one on the behaviour of girders of wrought and cast iron under sudden stress and moving loads? All the information at present available on this subject is the result of individual experiment only, and I believe no systematic, official study has been made. In the old days of railway engineering, lack of knowledge of formulæ was compensated by a superabundance of metal in cast-iron girders. Now a little more science is brought to bear on the matter. Yet, from all I can gather, there is little certain knowledge as to the life of iron as a strain-resisting and weight-bearing metal. Into this there should be an inquiry. Given the fact that if we bend a piece of iron wire backwards and forwards it will at last break, how far does this principle affect the life of an iron girder periodically deflected by passing trains? And seeing that in all things mundane the old order changes and gives place to the new, what is the rate of deterioration inherent in the metal iron, both free of outside influences and subject to strains and stresses?

Mr. John Taylor, the sensible, practical, and popular surveyor to H.M. Office of Works, is of our Gothic mind with reference to the sewer ventilators of London streets. Examined before the Committee of the House of Commons with reference to the ventilation of the "House," Mr. Taylor suggested that the foulness of the air was probably referable to the bad state of the atmosphere in the vicinity of the Westminster Palace. The witness described the street ventilators as in a "foul condition." It appears that some time back the old M.B.W. constructed a ventilator somewhere at the end of Westminster Bridge, and it resulted in such a pollution of the neighbouring atmosphere that it was stopped up. Now, irrespective of the ventilation of the Houses of Parliament, what is the consequence of stopping this ventilator? Simply, as was the case when the ventilators near the Stock Exchange were closed—that some other district suffers. The foul air of the sewer cannot get out of the old exits, consequently it finds it way to other openings. In this matter I am of most socialistic views. What is fair to one is fair to another. If the sewers are to be ventilated, let all take their share of the ventilation. When the shafts are constructed here and there, as I have often suggested, then perhaps these gratings would become inlets and cause no annoyance. I was glad to see that Mr. Taylor recommended the construction of a shaft to ventilate the sewers at Westminster. Something on this plan must be done sooner or later, although the necessity has not been very apparent this summer—so far—as we have had such a breezy time of it that London has been almost as fresh as the country.

I suppose that young engineers, like young architects, sometimes combine business with pleasure by looking at works that interest them during their holidays. Any such, then, may find something congenial to their tastes in the Manchester Ship Canal, should they be that way in their vacations. Marked progress has been made at the Eastham section of the work. It is stated that this length of the canal, as far as Ellesmere Port, will be opened towards the end of the present week. Upon the completion of this section efforts will be concentrated on that portion of the canal between Ellesmere Port and Runcorn, with which, also, great progress has been made; and it is hoped that before many weeks are passed communication between the Mersey and Runcorn may be an accomplished fact.

The German Emperor will not think much of our water-engineering. In the Royal Banqueting Hall at Windsor, the other evening, during the progress of dinner, the water-main burst and nearly flooded the hall. There is a humorous side to this occurrence, and we are apt to think that the bursting of water-pipes is an evil pertaining only to the life of a subject, and not to be inflicted upon the Queen and her royal guests. In some countries it would have been no laughing matter to the individual responsible for the condition of the pipe.

How the public may lose by the clearance of insanitary arrears has been demonstrated at Nottingham. The clearance of an unhealthy area in that town, with interest on outlay, &c., has cost the corporation no less than £186,000, making the price of saleable land, exclusive of streets, about £26 per yard. For a site for new post-office buildings, the corporation have only been able to get £4 per yard. From which we may learn that members of the London County Council who advocate the policy of caution in like matters are acting most advisedly, so long, at least, as there is a possibility of making the slum-owners contribute to the cost.

The congress of the British Archæological Association is to be held this year at York, from Aug. 17 to 23. A most interesting outline-programme is announced, and the members of the Association and their friends should have an enjoyable time in the old city. Besides the city churches and the cathedral, there will be visits to St. Mary's Abbey, Beverley Hall, Ripon, Fountains, Selby, Rievaulx, Byland, and Howden, while on the 24th, such of the members of the congress as are not wearied of old architectural remains, will join the excursion to Scarborough and see its old church and castle. The round o the Yorkshire abbeys will be instructive to any architect who, being out that way, might do worse than follow in the train of Oldbucks.

GOTH.

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Our Illustrations.

THE NATIONAL PORTRAIT GALLERY.

THE following general notes descriptive of this great work, now in course of erection at the cost of a private donor, have been furnished us by the architect, Mr. Ewan Christian:—"The form of the site, and the line of its boundaries, also the fact that there is a difference in the level of its south-east and north-west corners of more than 8ft., have necessarily determined the division of the new building into two main blocks. The eastern wing is, in fact, a completion of the façade of the National Gallery, treated in the same style as the front of that building. The northern block is on the higher level, and its eastern front 64ft. back from that of the eastern wing, the north-east quoin being set at the extreme northern point allowed by the conditions of the site. The connecting link between these blocks is the entrance hall and staircase, which gives access to each block of galleries, and rises by steps to the higher building. The main block of the Portrait Gallery, facing north, being practically a separate building, is treated in a style allowing of ample window light, which, on a site so limited in area, requiring at least three stories above the ground level, is a matter of absolute necessity, and in respect of outline and general design is based on Florentine and Roman models. As regards accommodation, the eastern wing on the ground story will be devoted to sculpture, for which there is a special entrance, level with the street pavement, the upper story being approached from first landing of main staircase. There will be two useful galleries available for water-colours, miniatures, &c., and over these rooms for photographs and stores. In the main north wing, which, owing to the necessity for deep foundation, has a complete basement story of considerable extent, there are two stories, the upper one being partly devoted to library and curio galleries, cloak-rooms, and heating-chamber, and other necessities, and the lower one to boilers, cellars, offices, &c., also police accommodation, all above the ground level of the courts and areas. On the ground story the eastern portion of the building is devoted to the administrative department, and the western to galleries for various purposes, print-rooms, reading-rooms. From this story to the top galleries provision is made for a passenger lift. On the first floor there will be a series of thirteen cabinets, each 20ft. by 13ft., on either side of a central corridor, and a long, cross gallery, 58ft. by 17ft. all window lighted. On top story, which will be wholly lighted from above, there will be altogether 11 galleries, varying from 58ft. by 17ft. to 16ft. by 15ft., the general width being 20ft. In addition to these there will be repairing-rooms on the two upper stories, with picture-lift from the ground level, service staircase from the bottom basement to the roofs, lavatory and other accommodation, and separate rooms for male and female students. The principal staircase is designed on the Roman and Genoese principle, with intermediate walls and arched ceilings up to the top flight. The ascent will be a perfectly easy one, and the steps fewer in number than in many foreign galleries, with the added convenience of the lift already mentioned for those who prefer to avoid them. The works up to the present time have been carried out under a contract, based on a schedule of prices, by Messrs. Shillitoe and Son, of Bury St. Edmund's, who have also contracted for the shell of the east wing. All the external walling above the base will be executed in Portland stone; the basement of the main building is faced with Cornish granite. Tenders will be asked for carrying up the main block of building above the level, and for the general completion of the interior of the building." We have had the advantage of carefully examining all the drawings, and can speak highly of the arrangements. In front of the main block facing Charing Cross-road will be an inclosure set out with shrubs and flowering trees, and having garden seats, and probably a fountain in the centre, arranged as indicated by the general plan herewith published with the two elevations. The wisdom of adopting Wilkins' lines for the eastern wing at the end of the National Gallery is self-evident, and the semicircular projection in the centre of the new façade not only increases the gallery accommodation of portrait-sculpture and statuary where it is most needed, but it enhances the character of the elevation, and serves to mark the differences in the depth of the projection of the end pavilions. Considerable difficulties had to be overcome in order to avoid interference with the lighting of the galleries of the National Gallery, and this necessitated restrictions of no ordinary kind, limiting the height and planning of Mr. Christian's new building. He has wisely adopted an entirely different type of building, which well contrasts, by its massiveness and breadth of treatment, with the adjoining structure. The required wide area between the two buildings encroached so considerably upon the area of the original site that it was found necessary to take in Hemming's-row, which is now incorporated with the site. A pathway across the inclosure will serve for pedestrians going towards Orange-street. The line marked by * in the east elevation shows the present line of E. M. Barry's addition to the National Gallery. This wall will be considerably lowered.

PROPOSED CHURCH, SUTTON ST. HELEN'S.

WE give the architects' drawing from this year's Royal Academy Exhibition. On plan, the church will consist of nave, five bays long, each 23ft. wide, with a central tower over the choir-stalls. There will be north and south transepts, one forming the organ-chamber, and the other a morning chapel, north and south aisles to nave, with porches on south side, and the clergy and choir vestries on the north side of chancel. The total length of the church is 122ft., and the width across aisles 50ft. The church is to be built with Rainhill stone, the dressings chiselled, and the external and internal facing of walls of broken-coursed scutched work. The roofs to be covered with green Westmoreland slates; the inside woodwork will be mostly of pitch-pine. The erection of the church is now being proceeded with, the sole contractor being Mr. Samuel Webster, of Bootle, Liverpool. The architects are Messrs. Paley, Austin, and Paley, of Lancaster.

MANSION, HILL-STREET, BERKELEY-SQUARE.

THIS house, now in course of erection from the designs of Messrs. J. T. Wimperis and Arber, of Sackville-street, will, when finished, form an effective addition to the architectural attractions of this neighbourhood. The Free Renaissance front is faced with Portland stone and Messrs. T. Lawrence and Son's rubber bricks. The chief feature is the bold projecting bay running up to the second floor, the upper part terminating with a steep gable the full width on the frontage line. The contractors are Messrs. Prestige and Co. Cambridge Wharf, Pimlico.

"SUMMER," FROM THE FRESCO IN THE ROYAL ACADEMY REFRESHMENT ROOM, BY W. REYNOLDS-STEPHENS.

THIS work has been executed as a commission from the President and Council of the R.A. When a student in the academy schools Mr. Reynolds-Stephens obtained the Decorative prize, with the water-colour sketch for the work. This was in '87, and the following year it was exhibited on the line at the Academy. A few words upon the manner of execution may be of interest. This artist, after carefully studying the merits and demerits of the various wall-painting methods, such as tempera, spirit fresco, paraffin-wax, &c., decided to employ paraffin-wax, owing to it being practically unacted upon chemically by anything, and feeling sure that colours incorporated with it would be greatly preserved from atmospheric damage, and would allow of the wall being carefully washed without harm to the work, which is almost impossible by the other methods. The wall is prepared by levelling with coats of finely slaked lime, then an absorbent canvas is fastened upon it with white lead, and the fresco painted with ordinary oil colours, mixed about half and half, with a medium consisting of paraffin-wax, turps, and copal varnish. This causes the surface to go dead or matt.

THE BAPTISTERY, CATHEDRAL, AND LEANING TOWER AT PISA.

THE panoramic view which we print to-day illustrates all three of these monuments of architecture, and between the Baptistery and the Duomo a glimpse is obtained of the Campo Santo, "The Garden of the Dead," which Giovanni Pisano designed in 1278 and completed in five years. The chapel at the east entrance has a dome of later date over it, and this shows in our view. Pisa, the rival of Florence in arts and arms, and next to Assisi, the chief sanctuary of Early Italian painting, is one of the most ancient cities of Etruria. Pliny ascribes its foundation to Pelops, and Strabo says it was founded by the followers of Nestor in their wanderings after the fall of Troy. The Piazza del Duomo, away in the corner of the city, "with its group of buildings clustered in and about this verdant carpet, is perhaps the most beautiful and remarkable in the whole world," said Dickens; and Forsyth adds: "There stand the Cathedral, the Baptistery, the Leaning Tower, and the Campo Santo; all built of the same marble, all varieties of the same architecture, all venerable with years, and fortunate both in their society and their solitude." The Cathedral, the central feature in the picture, was commenced by Buschetto, the architect, in 1064, and consecrated in 1118 by Pope Gelasius II. The plan,* as will be seen by our plate, is a Latin Cross, with a cupola at the crossing. The creamy tint of the white marble of which the church is built is beautiful in its soft tone. The west front is enriched with five tiers of arcades adorned with 58 shafts. Bonnano Pisano's original bronze doors were destroyed by fire in 1596, and the present ones are the work of Giovanni da Bologna in 1602. The central portal represents the History of the Blessed Virgin, and those at the side illustrate the life of our Lord. The church is 311ft. long by 237ft. wide at the transepts, and the nave has double aisles on either side. The two dozen columns of the main arcade were brought from the islands of Giglio and Elba. Those in the aisles came from more ancient buildings, and in most cases retain their original caps and bases. The roof of the nave is of wood, very flat in its pitch. The side aisles are vaulted. The 100 windows are filled with stained glass. The tombs in the cathedral, with its altars and frescoes, are of great interest and antiquity. Many of the pictures, unimportant in themselves, are of eminent value as representing scenes and legends of importance and influence in the history of the place. The Baptistery was begun in 1152 by Diotisalvi. It rises from a platform of three steps—a circular temple of white marble slightly inlaid with blue, after the manner of the Saracens. The second stage of the baptistery was erected as the free-will offering of 34,000 families, who each contributed one "soldo d'oro." The principal light comes from the upper tier of windows on the third story, and the cupola rises to a height of 102ft. from the pavement, and is surmounted by a statue of St. Raniero. The doors are enriched with reliefs from the History of St. John the Baptist. The immersion font stands in the centre. The pulpit, of which we gave an illustration in the BUILDING NEWS for June 1, 1888, is a masterpiece of Niccolo Pisano, rich and beautiful beyond compare. The Leaning Tower, quite as beautiful as it is extraordinary, was commenced in 1174 by Bonnano Pisano and William of Innspruck. The marble walls proved too heavy for the insecure foundations at first used, and so the building settled to such an

* For section and other details see "Edifices de Pise," by Georges Rohault de Fleury, published by Blance, of Paris, 1862.

extent that it leans 13ft. out of the perpendicular. Iron clamps were used to brace the building together, and the centre of gravity is still within the base. Two hundred and ninety-three steps of marble lead to the top of the tower. The Church of "Santa Maria della Spina" at Pisa was illustrated by us in our issue for April 11th last year. An interior of the Campo Santo will be found in our pages for Feb. 15th, 1889.

NAPOLEON THE FIRST'S BEDSTEAD.

THIS bedstead, recently bought at a sale, belonged to Napoleon I., and was purchased at a sale of the Tuileries furniture for 8,000 francs. It is a very fine specimen of the style of the period. The framework is of fine oak, veneered with very beautiful Spanish mahogany. The ornaments are cast in brass, wrought over and highly gilt. They are of considerable artistic merit, particularly the figures and imperial bees. We are indebted to Mr. R. Ward, of 31, Lancaster Park, Richmond, Surrey, for permission to publish this sketch, and also to Mr. W. P. Ryan, of Fenchurch-street, for obtaining the same.

TO CORRESPONDENTS.

RECEIVED.—A. L. B.—E. S.——B. G. and S. Co.—J. B.—M. D. and Co.—E. H. S.—A. O. H.—E. and S.

"BUILDING NEWS" DESIGNING CLUB.

DRAWINGS RECEIVED.—"Pickwick," "The Bard," Three Lions in a Shield, "Eighteen 91," "Better Late than Never."

TERRA COTTA. (The particulars as to our Club always appear under this head; and should we recommence its work this year for next season, full particulars will be printed next October. The session 1890-91 will conclude with the illustration and review of the last subject given—viz., "A Lawn Tennis Pavilion.")

CHIPS.

A new Wesleyan chapel at Settrington, near Malton, was opened on Wednesday week. It is Gothic in character, and has a high pitched, open-timbered roof, and is seated in pitch pine for 150 persons. Mr. C. H. Channon, of Malton, was the architect.

A brass lectern, with spiral column, around which three angels are groupe1 to support the desk, has been presented to Milton Church, Hants, as a memorial. Messrs. Hardman and Co., of Birmingham, executed the work.

The parish church of St. Mary, Manchester, a pseudo-Classic building begun in 1754, and consecrated in 1756, is being demolished, being no longer needed for purposes of worship. The churchyard will be reserved as a public open space, and a correspondence is in progress in the Manchester papers advocating the preservation of the tower, which is described by more than one writer as the most interesting steeple in the city.

Probate duty has been paid on £218,549 as the net value of the personal estate of Sir John Hawkshaw, of Holycombe, Sussex, who died on the 2nd June at Belgrave Mansions, aged 80 years. The testator bequeaths to the Institute of Civil Engineers, of which he has been president, £500.

The drill hall at Dumfries, which measures 137ft. by 87ft., is being lighted by the Wenham regenerative gas lamps by Messrs. Henry Milner and Son, of Edinburgh, under the direction of the architect, Mr. A. B. Crombie.

On Tuesday, a meeting was held at the Westminster Palace Hotel, the Earl of Aberdeen in the chair, in advocacy of a scheme for providing residential chambers for young men in London. The site of the club is near Kennington Oval, and plans have been drawn by Messrs. Durward Brown and A. J. Gordon, architects, of Whitehall, to accommodate 438 tenants, providing each with a sitting-room, with bed alcoves, at rents varying from 10s. to 18s. per week, which will include the use of reading, writing, lecture, billiard, and recreation rooms, as well as dining-rooms, where meals will be supplied in common.

The condition of the monument erected in 1817, on the hilltop above the town of Wellington, in Somerset, to commemorate the Battle of Waterloo, has become exceedingly unsatisfactory. A county meeting was held at Taunton on Saturday, presided over by the Earl of Cork, Lord-Lieutenant of the county, to take the matter into consideration. It was resolved to restore the monument at a cost, including the erection of a caretaker's house, of £1,200.

At the Northumberland Quarter Sessions on Friday, a presentation was made to the chairman of his life-size portrait, a work of Professor Herkomer, R.A., together with a replica for the grand jury-room of the Moot Hall, Newcastle.

ARCHITECTURAL & ARCHÆOLOGICAL SOCIETIES.

THE BRITISH ARCHÆOLOGICAL CONGRESS. — This meeting will be held at York between August 17th and 22nd. The Marquis of Ripon will preside. The first two days, Monday and Tuesday, will be devoted to an inspection of the cathedral, the city walls, churches, and St. Mary's Abbey, with its Hospice, and its museum of Roman antiquities. One day will be spent in a visit to Beverley Minster, and Hull, another to Ripon and Fountains Abbey, and two days will be devoted to Selby Abbey Church, the Abbeys of Rievaulx and Byland, and the Collegiate Church of Howden. On the Monday evening the party will be entertained at a conversazione at the Mansion-house, and on each of the other evenings meetings will be held in the new Guildhall for the reading of papers, to be followed by discussions. Monday, the 24th, will be spent in an excursion to Scarborough.

THE BRITISH SCHOOL AT ATHENS.—Lord Justice Bowen presided on Friday at the annual meeting in support of the British School at Athens. The hon. secretary, Mr. G. A. Macmillan, read the annual report, which, after referring to the excavation of the theatre at Megalopolis, under Mr. F. C. Penrose's direction, stated that Miss Eugenie Sellers, well known in London as a lecturer on archæology, had been admitted as the first lady student. Messrs. R. W. Schultz and Barnsley, who had returned to England in December, had continued during the past session their valuable work on Byzantine architecture. They might possibly return to Greece in the autumn. The chairman, in moving the adoption of the report, expressed the belief that the fortunes of the British School at Athens are steadily, although slowly, progressing. In order to enable Mr. Ernest Gardner to continue his services to the cause of archæology and of classical study as director of the Athens School in the chair first filled by Mr. Penrose, Caius College had re-elected Mr. Gardner to a Fellowship for a renewed term of three years. The adoption of the report was seconded by Lord Lingen, and unanimously adopted. Mr. Ernest Gardner then read the report of his work during the last year, and Mr. F. C. Penrose gave an account of his work at Athens, which was mainly devoted to the site of Megalopolis. Professor Lewis Campbell moved the election of officers of the school, which was seconded by Dr. Perry, and agreed to.

BRISTOL AND GLOUCESTERSHIRE ARCHÆOLOGICAL SOCIETY.—The annual meeting of this society will be held next week at Moreton and Oxford. The new President (Mr. A. B. Freeman-Mitford, C.B.) will be introduced to the members at the Redesdale Memorial Hall, Moreton, and will deliver his inaugural address on Tuesday, the 14th inst. The members will then visit Bourton-on-the-Hill and Blockley Church, and then go to Northwick Park. The Northwick collection of paintings will be inspected. In the evening a conversazione will be held in the Redesdale Hall, at which papers of local antiquarian interest will be read. On Wednesday there will be an excursion to Little Compton House and Church, and the Elizabethan mansion, Chastleton House, after which the Rollright stones will be described by Mr. A. S. Evans, F.S.A., keeper of the Ashmolean Museum, Oxford. After a visit to Chipping Norton Church, the party will leave for Oxford. Business here will commence on Thursday morning. On Friday, after the business meeting, the members will be received at Worcester College by the Rev. C. H. O. Daniel, M.A., who will read a paper on its history; and at the Ashmolean Museum by Mr. Evans. In the afternoon the members will assemble at New College, and visit other colleges under the guidance of Mr. Parker, and there will be a river excursion to the Norman Church at Iffley.

DUNDEE INSTITUTE OF ARCHITECTURE, SCIENCE, AND ART.—The annual meeting of this Institute was held on Friday. Mr. Willsher, Pitpoindie, Mr. John Adamson, Mr. James Gold, and Mr. Adam Hunter were elected associates. The report stated that there were now 50 members, 168 associates, and eight honorary members on the roll. The treasurer's account showed that the sum on hand had been reduced from £60 5s. to £41 11s. 4d., due to the increased sum given as prizes. It was agreed, on the motion of the chairman, to affiliate with the Royal Institute of British Architects, the rules of the society being amended so that each member eligible for election should sign a declaration to the effect that he was engaged in architecture, and would not accept any trade or other discounts, or illicit or surreptitious commission or allowances in connection with any works the execution of which he may be engaged to superintend.

PARLIAMENTARY NOTES.

VENTILATION OF THE HOUSE OF COMMONS.—The committee appointed to inquire into the ventilation of the House of Commons met again on Friday. Mr. William Prim, consulting engineer to her Majesty's Office of Works, was recalled, and in further examination by the chairman, the Rt. Hon. David Plunket, described the arrangements for ventilating and warming the committee-rooms and corridors. The air, he said, was taken in from the terrace through the area at the bottom into a chamber, whence it passed along into a passage, and so to the heating apparatus, from which the air passed into the committee-rooms through the floors and skirtings, and in some places through a grating at the back of the chairman, the air coming into the corridors leading to the committee-rooms underneath the seats. The vitiated air passed through the ceiling by a shaft to the Victoria Tower, at the base of which there were two furnaces for the purpose of creating a draught. Bad air could only get back into the other rooms if there was a down draught from the main vitiated air-shaft, which occasionally happened when a strong wind was blowing. A back draught could be obviated by placing in valves such as had already been used in some cases. The witness promised to prepare a plan showing where he would recommend that these valves should be placed. The witness explained the difficulty there would be in letting an increased quantity of air into the reading and tea-rooms without causing a draught. A smell resembling sewer gas was complained of; but this came from the sulphurous fumes of passing barges, and not from the sewers. This opinion was confirmed by Mr. Jones, clerk of the works to the House of Commons. On Monday Mr. John Taylor, surveyor to Her Majesty's Board of Works, was examined before a committee of the House of Commons as to the ventilation of that building. He said that he did not think it possible for any gas from the public sewers to get into the drains of the Houses of Parliament; but he added that the ventilators from the main drainage system in the vicinity of that building were in a most foul condition, and this ought to be remedied. The sewers running immediately outside the gates of New Palace-yard were, he said, the worst, although they were under the control of the County Council.

LOANS FROM THE NATIONAL GALLERY.—In reply to Mr. Lees, Mr. W. H. Smith said there were objections to the proposal that the trustees of the National Gallery should be recommended to arrange for the interchange by provincial art galleries of the collections lent to them by the National Gallery under the National Gallery Loan Act, on account of the extra risk thereby incurred, and also on the score of expense, as the National Gallery has no funds at its disposal from which the carriage, packing, and insurance of the pictures could be paid.

PUBLIC HEALTH (LONDON) BILL.—This measure passed second reading in the House of Lords on Tuesday. Viscount Cross explained that it is partly a consolidation Bill and partly an amending Bill. At present there are no fewer than 29 Acts of Parliament dealing with the subject, while the Public Health Act of 1875, which applies to the provinces, and which contains many excellent provisions, does not apply to the metropolis. The Bill contains new provisions with regard to the removal of nuisances, offensive trades, smoke, the removal of refuse, the regulation of workshops and bake-houses, the notification of infectious diseases, together with provisions to do away with the existence of underground rooms. Sanitary inspectors are given large powers for the enforcement of the law, and the Bill provides for the punishment of sanitary authorities themselves who fail to carry out the duties imposed on them.

A retired carpenter and builder, at Burford, Oxon, an octogenarian, named James Wickins, attempted suicide on Saturday by cutting his throat. He is likely to recover.

At the last sitting of the Edinburgh Dean of Guild Court, a warrant was granted to the kirk-session of St. Cuthbert's Parish Church, Edinburgh, to reconstruct the building, the architect being Mr. Hippolyte J. Blanc, of Edinburgh. It is not intended, unless funds permit, to complete the campaniles on the eastern towers, though, for the sake of effect in a building occupying so prominent a site, the court expressed the hope that the design would be carried out in its entirety. The building area has been inclosed, and estimates for the foundation excavations have been obtained, so that in a few days operations will be proceeded with.



MODEL OF A FOUNTAIN AT THE ROYAL ACADEMY.

MODEL OF A FOUNTAIN AT THE ROYAL ACADEMY.

THIS fountain model, which forms the central object in the Octagon Hall at the Royal Academy Exhibition, is from a sketch furnished by the artist, Mr. G. W. Wilson.

SANITARY FITTINGS AND THEIR APPLICATION.*

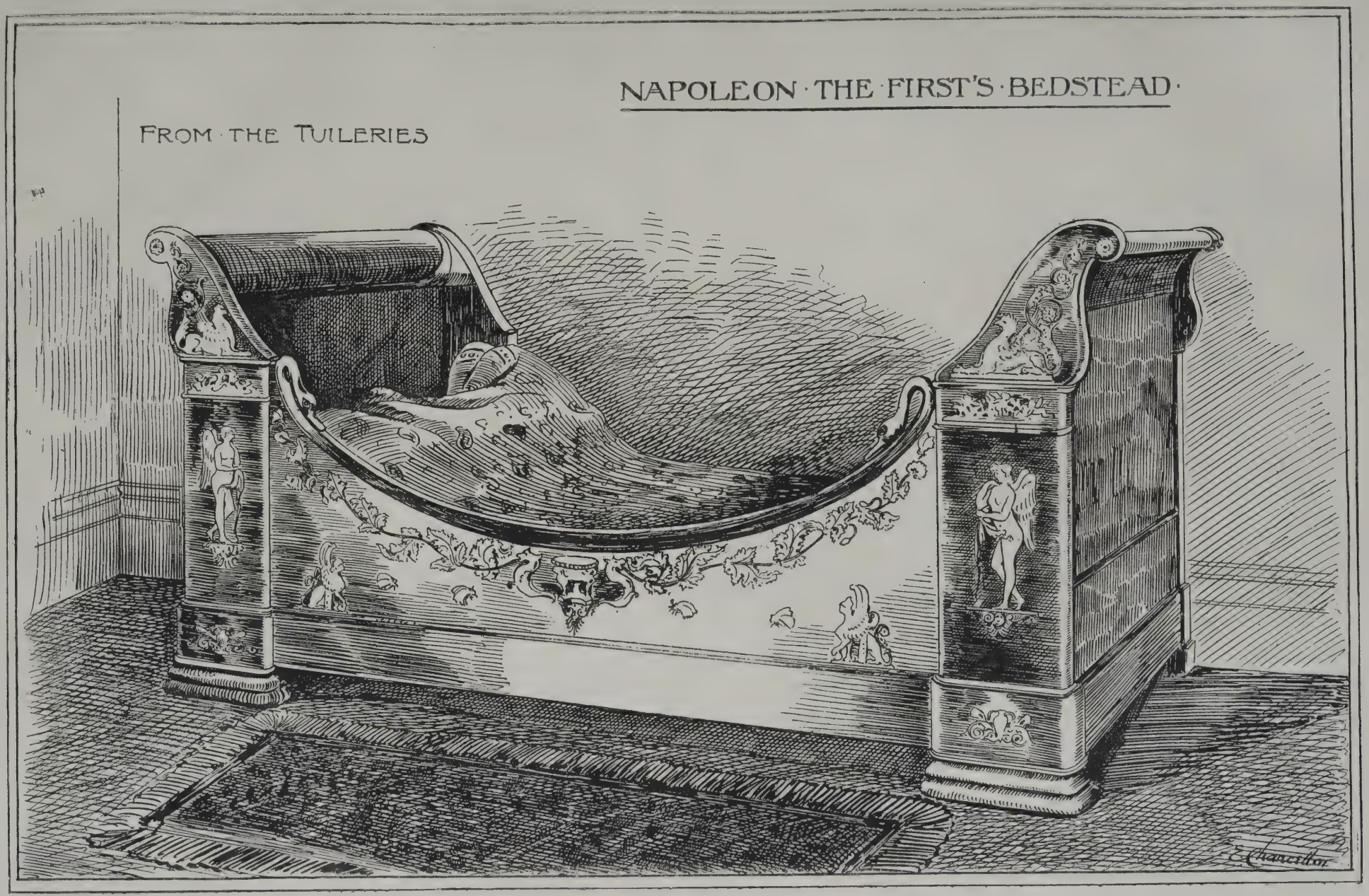
NUMEROUS treatises by patentees and others have issued from the press on sanitary matters, but these have been prompted more by a desire to recommend certain systems and specialities, than to instruct the public. Mr. Robert M. Wharam, sanitary engineer, of Marlborough-road, Chelsea, has brought out a little book of "Hints on Sanitary Fittings," for the benefit and use of owners of house property and others interested in healthful buildings, which gives, in the compass of 30 pages, the principles that ought to be observed in the construction of dwellings; and with this object Mr. Wharam takes a London house of the average rental of about £50, and shows how the drainage and fittings should be carried out. The danger of sewer-gas in connection with our system of metropolitan main drainage is referred to as being the grave mischief to be guarded against. To prevent the entrance of the sewer-gas into the house, a water-trap between the house and sewer is the primary essential; in other words, a water-tight chamber should be constructed to allow of easy cleansing and inspection. Such a disconnecting chamber is now generally constructed to all good houses; every dwelling should have one, but this is far from being the case. The author illustrates a good form of stoneware disconnecting trap for this purpose, which is joined to the drain-pipe. The connection between the inner portion of main drain and the trap is by an open channel-pipe, so that any gas can find free escape. As a means of ventilating the chamber, a vertical pipe with a mica air inlet valve may be introduced, which, while admitting fresh air, prevents the escape of sewer-gas. Here the author illustrates the inlet and an air-tight movable cover of cast iron for the chamber. Several useful hints are given about the waste-pipes, drain-pipe laying, junctions, and jointing. The second inspection chamber at the highest point of main drain is similarly constructed with flow and open channels to receive branch drains and soil-pipe. Mr. Wharam points out the great care that ought to be exercised in the selection of the fittings, and he describes and illustrates a combined w.c. apparatus with wash-down basin and trap, urinal and slop sink. The seat is a hinged self-raising one. Engravings of basin and trap, flushing cistern with siphon action, are given, and the mode of fixing the same, the soil-pipe, and its ventilation. The servants' w.c. and flushing cistern arrangement, an improved bath without the objectionable casing of wood, and the "combined overflow, waste, and trap" are fittings no less important that are described. Illustrations are given of gully-traps to receive waste from bath, lavatory, and rain-water drain, a lavatory basin, and flush tank, and the author briefly sums up the chief points to be observed as follows:—(1) The main drain of about 6in. diameter, having a sufficient down grade to sewer, and as straight as possible; (2) two inspection chambers near external walls outside the house—one at the highest portion of main drain and one at the lower side, with intercepting trap; (3) an inlet for fresh air to the lower chamber, and an outlet from the higher portion of drain carried above roof—practically a siphon inverted; (4) to use w.c. basins and traps of well-glazed earthenware, and of simple construction; (5) to have all wastes from baths, lavatories, sinks, &c., trapped, with provision against siphonage, and generally to have all plumbers' fittings easily accessible, and to avoid unnecessary casings. We recommend Mr. Wharam's sixpenny *brochure* to the careful perusal of every architect, builder, and house-owner.

* Hints on Sanitary Fittings and their Application. By Robert Marr Wharam. London: H. and W. Brown, Fulham-road.

St. Peter's parish church, Claypole, Lincolnshire, is about to be restored at a cost of £3,000. Mr. C. Hodgson Fowler, F.S.A., of Durham, is the architect, and the contractors are Messrs. Close, of Lincoln.

NAPOLEON THE FIRST'S BEDSTEAD

FROM THE TUILERIES



PRICES.—IX.*

[It will have to be borne in mind that the prices given do not include any provision for an increase in the cost of labour, should the men now on strike obtain the 10d. per hour; and contracts taken pending the strike should be entered into with caution, and ought to have a clause allowing an increase if the 10d. is paid, though it scarcely seems probable that it will be.]

CHILMARK *and Wardour Stone.—(Continued.)*

MASON.

		£	s.	d.
12 by 2 sawn coping throated and set	per foot run	0	1	4
12 by 2½ ditto	ditto	0	1	6
12 by 3 ditto	ditto	0	1	8
12 by 4 ditto	ditto	0	2	0
12 by 5 ditto	ditto	0	2	4
12 by 6 ditto	ditto	0	3	0
15 by 2½ ditto	ditto	0	1	8
15 by 3 ditto	ditto	0	1	11
15 by 4 ditto	ditto	0	2	4
15 by 5 ditto	ditto	0	3	2
15 by 6 ditto	ditto	0	3	9
18 by 6 ditto	ditto	0	4	6
12 by 4 saddle backed ditto throated and rubbed	ditto	0	2	4
12 by 5 ditto	ditto	0	2	10
12 by 6 ditto	ditto	0	3	6
15 by 2½ ditto	ditto	0	1	9
15 by 3 ditto	ditto	0	2	2
15 by 4 ditto	ditto	0	2	10
15 by 5 ditto	ditto	0	3	6
15 by 6 ditto	ditto	0	4	2
18 by 6 ditto	ditto	0	5	0
18 by 9 ditto	ditto	0	7	0
9 by 5 steps rubbed on head and riser	ditto	0	2	6
10 by 6 ditto	ditto	0	2	11
10 by 7 ditto	ditto	0	3	4
11 by 7 ditto	ditto	0	3	9
12 by 7 ditto	ditto	0	4	0
Add for moulded nosing and sunk risers	ditto	0	0	9
Add if over 6ft. long	ditto	0	0	3

YORK STONE.—HOWLEY PARK.

In blocks at London depot	per foot cube	0	3	0
Ditto including waste and cartage within four miles of depot	ditto	0	3	10
Ditto ditto including hoisting, setting, and cleaning down	ditto	0	4	7
Usual extras for hoisting over 30ft. York stone may be obtained in very long blocks, and if sawn, without extra, if average is maintained; but the long blocks are, nevertheless, if these only are used, worth more, say	ditto	0	0	3
Half sawing	per foot super.	0	0	4
Plain work to beds and joints	ditto	0	0	11
Ditto rubbed to faces	ditto	0	1	2
Ditto ditto circular	ditto	0	1	6
Sunk work	ditto	0	1	5
Ditto rubbed	ditto	0	1	8
Ditto ditto circular	ditto	0	1	9
Ditto ditto ditto rubbed	ditto	0	2	0
Moulded work	ditto	0	2	0
Ditto rubbed	ditto	0	2	3
Ditto in short lengths	ditto	0	2	6
Ditto stopped in ditto	ditto	0	2	9
Ditto ditto circular	ditto	0	2	6
Ditto ditto ditto rubbed	ditto	0	2	9
Ditto ditto ditto in short lengths	ditto	0	3	0
Ditto ditto ditto stopped	ditto	0	3	3
Tooled stroke to face work	ditto	0	1	0
Ditto sunk	ditto	0	1	3
Ditto circular	ditto	0	1	6
Ditto sunk circular	ditto	0	1	9
Jointed edge to 3in. stone	per foot run	0	0	3
Ditto ditto 4in.	ditto	0	0	3½
Ditto ditto 5in.	ditto	0	0	4½
Ditto ditto 6in.	ditto	0	0	6
Joggle joints to 3in. and cement	ditto	0	0	9
Ditto ditto 4in. ditto	ditto	0	0	10
Ditto ditto 5in. ditto	ditto	0	0	11
Ditto ditto 6in. ditto	ditto	0	1	0
Ditto he and she 3in. ditto	ditto	0	1	0
Ditto ditto 4in. ditto	ditto	0	1	1
Ditto ditto 5in. ditto	ditto	0	1	2
Ditto ditto 6in. ditto	ditto	0	1	3
If run with lead, add for each inch in thickness	ditto	0	0	1
Plain ends to steps	each	0	0	6
Moulded ditto, 6in.	ditto	0	1	0
Ditto ditto 8in.	ditto	0	1	3
Plain ends to window-sills	ditto	0	0	4
Stops to weathering	ditto	0	0	9
Rounded corners to steps	ditto	0	0	9
Ditto to moulded ditto	ditto	0	1	3
Ditto semi	ditto	0	2	0
Ditto ditto to moulded ditto	ditto	0	3	6
Ditto to sinks	ditto	0	0	9
Mortises for balusters	ditto	0	0	3
Add for lead	ditto	0	0	3
Mortices for newels	ditto	0	0	4
Add for lead	ditto	0	0	6
Iron dowels and mortices	ditto	0	0	6
Coping cramps, including mortises and cement	ditto	0	1	0
Holes for pipes in sink	ditto	0	0	8
Rebated holes for coal-plates	ditto	0	2	3
Notchings in hearths	ditto	0	0	6
Ditto double	ditto	0	0	9
Mortises for gate hinges	ditto	0	0	6
Ditto, including lead	ditto	0	1	0
Large ditto	ditto	0	0	9
Ditto, including lead	ditto	0	1	6
Ladings, 3in. thick, tooled one side, and hoisted and set	per foot super.	0	1	7
Ditto, 4in.	ditto	0	2	0
Ditto, 5in.	ditto	0	2	6

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		£	s.	d.
Ditto, 6in.	ditto	0	3	0
Ditto, 7in.	ditto	0	3	6
Add for tooling one side	ditto	0	0	2
Add for rubbing each side	ditto	0	0	2
If above 30ft. in one stone add	ditto	0	0	3
Landings, 3in., sawn one side	ditto	0	1	8
Ditto 4in. ditto	ditto	0	2	1
Ditto 5in. ditto	ditto	0	2	7
Ditto 6in. ditto	ditto	0	3	2
Ditto 7in. ditto	ditto	0	3	8
Add half-sawing if sawn two sides.				
Hearthstones, 1½in., tooled	ditto	0	1	1
Ditto 2in. ditto	ditto	0	1	2
Ditto 2½in. ditto	ditto	0	1	3
Ditto 3in. ditto	ditto	0	1	4
Ditto 1½in. sawn	ditto	0	1	2
Ditto 2in. ditto	ditto	0	1	3
Ditto 2½in. ditto	ditto	0	1	4
Ditto 3in. ditto	ditto	0	1	5
Paving, 2in. thick, self-faced, laid in parallel courses	ditto	0	0	9
Ditto 2½in. ditto	ditto	0	0	10
Ditto 3in. ditto	ditto	0	0	11
Ditto 2in. tooled	ditto	0	0	10
Ditto 2½in. ditto	ditto	0	0	11½
Ditto 3in. ditto	ditto	0	1	1
Ditto 2in. rubbed	ditto	0	0	11
Ditto 2½in. ditto	ditto	0	1	0½
Ditto 3in. ditto	ditto	0	1	2
Chimneypieces, 1in., in shelf jambs and frieze, rubbed	ditto	0	1	2
Ditto ditto 1½in. ditto	ditto	0	1	4
Ditto ditto 1½in. ditto	ditto	0	1	6
Ditto ditto 2in. ditto	ditto	0	1	10
Ditto in boxed chimneys—				
Ditto ditto ⅞in. ditto	ditto	0	1	2
Ditto ditto 1in. ditto	ditto	0	1	4
Ditto ditto 1½in. ditto	ditto	0	1	7
Ditto ditto 1¾in. ditto	ditto	0	1	10
Ditto ditto 2in.	ditto	0	2	2
Sinks, tooled and sunk, 4in.	ditto	0	2	0
Ditto ditto 5in.	ditto	0	2	3
Ditto ditto 6in.	ditto	0	2	6
The value per foot super of sinks from small to large varies, especially where there are many of them.				
Steps and thresholds, tooled two sides, and bedded in cement 9 by 6	per foot run	0	2	4
Ditto 10 by 6	ditto	0	2	8
Ditto 11 by 6	ditto	0	2	10
Ditto 12 by 7	ditto	0	3	3
Ditto 11 by 7	ditto	0	3	6
Ditto 12 by 7	ditto	0	3	9
Ditto 13 by 7	ditto	0	4	0
Ditto 15 by 7	ditto	0	4	9
Ditto 18 by 7	ditto	0	5	6
Ditto rubbed two sides, and bedded in cement 9 by 6	per foot run	0	2	6
Ditto 10 by 6	ditto	0	2	10
Ditto 11 by 6	ditto	0	3	1
Ditto 12 by 6	ditto	0	3	6
Ditto 11 by 7	ditto	0	3	9
Ditto 12 by 7	ditto	0	4	0
Ditto 13 by 7	ditto	0	4	3
Ditto 15 by 7	ditto	0	5	0
Ditto 18 by 7	ditto	0	5	10
Add for back-jointing		0	0	2
Add for moulded nosings, and sunk risers		0	0	9
Spandrel steps, rubbed all round, and birdsmouth rebated joints 9 by 6	per foot run	0	2	4
Ditto 10 by 6	ditto	0	2	8
Ditto 11 by 6	ditto	0	3	0
Ditto 12 by 6	ditto	0	3	4
Ditto 11 by 7	ditto	0	3	6
Ditto 12 by 7	ditto	0	3	9
Ditto 13 by 7	ditto	0	4	0
Ditto 15 by 7	ditto	0	4	9
Add for moulded nosing, &c.		0	0	9
Window sills, tooled, weathered, and throated 8 by 3	per foot run	0	1	2
Ditto 8 by 3½	ditto	0	1	4
Ditto 9 by 4	ditto	0	1	6
Ditto 10 by 4	ditto	0	1	8
Ditto 11 by 4	ditto	0	1	10
Ditto rubbed ditto, sunk, weathered, and throated 8 by 3	ditto	0	1	5
Ditto 8 by 3½	ditto	0	1	7
Ditto 9 by 4	ditto	0	1	9
Ditto 10 by 4	ditto	0	2	0
Ditto 11 by 4	ditto	0	2	3
Curbs, tooled three sides, and bedded in cement 5 by 6	per foot run	0	1	3
Ditto 6 by 6 ditto	ditto	0	1	6
Ditto 7 by 6 ditto	ditto	0	1	9
Ditto 8 by 6 ditto	ditto	0	2	0
Ditto 9 by 4 ditto	ditto	0	1	6
Ditto 9 by 5 ditto	ditto	0	1	10
Ditto 9 by 6 ditto	ditto	0	2	3
Ditto 9 by 8 ditto	ditto	0	3	0
Add for chamfer	ditto	0	0	2
Add for rounding on top edge	ditto	0	0	4
Add for rebate	ditto	0	0	3
Curbs, rubbed three sides and bedded 5 by 6	ditto	0	1	5
Ditto 6 by 7 ditto	ditto	0	1	8
Ditto 7 by 6 ditto	ditto	0	1	11
Ditto 8 by 6 ditto	ditto	0	2	2
Ditto 9 by 4 ditto	ditto	0	1	8
Ditto 9 by 5 ditto	ditto	0	2	0
Ditto 9 by 6 ditto	ditto	0	2	5
Ditto 9 by 8 ditto	ditto	0	3	2
Coping, sawn all round and throated both edges 12 by 2	ditto	0	1	1
Ditto 12 by 2½ ditto	ditto	0	1	3
Ditto 12 by 3 ditto	ditto	0	1	6
Ditto 17 by 2½ ditto	ditto	0	1	9
Ditto 17 by 3 ditto	ditto	0	2	2
Ditto 17 by 4 ditto	ditto	0	2	10
Ditto 18 by 4 ditto	ditto	0	3	0
Ditto 21 by 4 ditto	ditto	0	3	6

		£	s.	d.
Add for rubbing face and edges:—				
12 by 2	ditto	0	0	2
12 by 2½	ditto	0	0	2½
12 by 3	ditto	0	0	2½
17 by 2½	ditto	0	0	3
17 by 3	ditto	0	0	3
17 by 4	ditto	0	0	3
18 by 4	ditto	0	0	3½
21 by 4	ditto	0	0	3½
Add for weathering both ways	ditto	4d to 6d.		
Channel stones, tooled three sides, and with sunk channel 10 by 4	ditto	0	0	0
Ditto 11 by 4 ditto	ditto	0	0	0
Ditto 12 by 4 ditto	ditto	0	0	0
Ditto 13 by 4 ditto	ditto	0	0	0
Ditto 14 by 4 ditto	ditto	0	0	0
Add if rubbed	ditto	2d to 3d.		
Add if stopped	ditto	0	0	2
Add for holes	ditto	0	0	9
Add for stops	ditto	6d to 9d.		
Templates, self-faced, bedded in cement 9 by 4½ by 3	each	0	0	10
Ditto 9 by 9 by 3	ditto	0	1	0
Ditto 9 by 14 by 3	ditto	0	1	3
Ditto 9 by 18 by 3	ditto	0	1	6
Ditto 14 by 18 by 3	ditto	0	2	0
Ditto 9 by 9 by 4	ditto	0	1	2
Ditto 9 by 14 by 4	ditto	0	1	6
Ditto 14 by 14 by 4	ditto	0	2	0
Ditto 18 by 14 by 4	ditto	0	2	6
Ditto 9 by 9 by 6	ditto	0	1	6
Ditto 9 by 14 by 6	ditto	0	2	3
Ditto 9 by 18 by 6	ditto	0	2	9
Ditto 14 by 18 by 6	ditto	0	3	6
Ditto tooled all round 9 by 4½ by 3	ditto	0	1	2
Ditto 9 by 9 by 3	ditto	0	1	4
Ditto 9 by 14 by 3	ditto	0	1	6
Ditto 9 by 18 by 3	ditto	0	2	0
Ditto 14 by 18 by 3	ditto	0	2	3
Ditto 9 by 9 by 4	ditto	0	1	6
Ditto 9 by 14 by 4	ditto	0	1	9
Ditto 14 by 14 by 4	ditto	0	2	3
Ditto 18 by 14 by 4	ditto	0	2	10
Ditto 9 by 9 by 6	ditto	0	1	9
Ditto 9 by 14 by 6	ditto	0	2	6
Ditto 9 by 18 by 6	ditto	0	3	1
Ditto 14 by 16 by 6	ditto	0	3	6
Bases, self-faced 18 by 18 by 6	ditto	0	6	0
Ditto 21 by 21 by 6	ditto	0	7	0
Ditto 24 by 24 by 6	ditto	0	10	0
Ditto 24 by 24 by 9	ditto	0	15	0
Ditto 36 by 36 by 9	ditto	1	10	0
Ditto rough tooled 18 by 18 by 6	ditto	0	7	0
Ditto 21 by 21 by 6	ditto	0	9	0
Ditto 24 by 24 by 6	ditto	0	12	0
Ditto 24 by 24 by 9	ditto	0	18	0
Ditto 36 by 36 by 9	ditto	1	18	0

CHIPS.

At a vestry meeting held at Uphill, near Bristol, it was decided to rebuild and enlarge the chancel of the parish church and reseat the nave, at an estimated cost of £1,000.

The work in connection with the extension of the infirmary at Warrington has been commenced by Messrs. Gibson and Sons, contractors. A new building will be erected on an adjoining plot of and in the gardens purchased from the corporation. The cost of the new building is estimated at about £2,000, and the work is to be completed by the 30th November. The plans have been prepared by Mr. Wm. Owen, architect, Cairo-street, Warrington. Great improvements have been made in the old buildings from Mr. Owen's designs.

The will of Mr. James Fennings, formerly of Fennings' Wharf, Tooley-street, and of King's-road, Clapham-new-park, and late of 2, Park-place, Eltham, granite merchant, who died on May 26th, has been proved, the value of the personal estate amounting to over £11,000.

The conversazione of the Institution of Electrical Engineers was held on Monday evening in the galleries of the Royal Institute of Painters in Water Colours, Piccadilly. The company were received by the president, Professor Wm. Crookes, F.R.S., and Mrs. Crookes. There was a very large attendance.

Mrs. Burne-Jones appeals to art collectors to lend their pictures during their absence from town to the South London Fine Art Gallery in Peckham-road, Camberwell. "Simple subjects, bright landscapes, and portraits of well-known persons" are specially welcome. Letters can be addressed to the Secretary, South London Art Gallery, Camberwell, S.E.; or to Mrs. Burne-Jones, The Grange, West Kensington, W.

The Metropolitan Asylums Board have, by 28 votes to 23, shelved *sine die* the consideration of a committee's report that offices should be built for the Board on a freehold site next to the London School Board offices on the Embankment, now occupied by Gwynne's factory. The estimated cost of the site would be from £30,000 to £40,000, and of the building itself another £20,000.

Among the measures which received the Royal assent on Friday were the London Sky Signs Bill and the London Overhead Wires Bill.

Mr. Charles Kirk, of Sleaford, who has just retired from the office of county surveyor for Kesteven, Lincolnshire, has been appointed a Justice of the Peace for that division.

Building Intelligence.

Camborne.—New public buildings in Trevenson-street, Camborne, were opened recently. The plans were drawn by Mr. Silvanus Trevail, M.S.A., of Truro, and the contract was let to Mr. James Julian, of Truro, at £3,500. The design is Norman in character, and the very plain structure has a front of granite and elvan. Its total length is 112ft., its width 57ft., and height 22ft. to tie-rods. The chief hall will seat 1,500 persons, and is the largest in Cornwall. The walls of buildings are all of elvan, with the exception of the front, built with hydraulic mortar, and with red brick dressings. The height to the apex of roof is 50ft., and the walls are 34ft. in height. Boyle's patent ventilators are used. On the ground floor is provided a suite of commodious rooms, to be utilised as a club. Entrance to the hall is gained by four staircases, two in the front and two in the rear, and formed of concrete carried on iron girders, with iron balustrades. The stage is 18ft. deep and 35ft. wide. In front of it is an elliptic proscenium arch, with a span of 25ft., constructed of 14in. brickwork and cement, and provided with a water curtain. Running round two sides and the end of the hall is a wide gallery. The internal fittings are all in the Elizabethan style, worked in pitchpine.

Knowle, Bristol.—A mission church, dedicated to St. Martin, was opened at Upper Knowle on Friday, in connection with the Church of the Holy Nativity. The mission church is built of wood, and consists of sanctuary and open nave, and the flooring is laid with wooden blocks. As regards construction, the church is a novelty, and protected by the patent laws. It admits of being readily removed, and, as regards the main building, requires no scaffolding for its erection, and it affords facilities for enlargement at any time at slight cost. It is 42ft. in length, 20ft. 6in. in width, and 21ft. to the apex of the roof. It has a south porch and entrance, and a shingled approach. The eastern and western windows, and the spandrels to the buttresses, are filled with tracery. The building accommodates about 150 persons. The work was executed by Mr. Job Stanley, of Broom, Worcestershire, from the designs of the inventor, Mr. William Jeffrey Hopkins, diocesan architect of Worcester. It was framed at Broom, and afterwards forwarded and erected upon the spot. The proportions will be improved when another bay is added to the length for the purpose of meeting the future necessities of further accommodation.

Romford.—At the last meeting of the Romford School Board, an account was submitted by Mr. Hudson, the architect in connection with the enlargement of the Albert-road Schools, amounting to £79, and included an item of three guineas for professional advice. This, it was explained, was a sum paid by Mr. Hudson to Mr. E. R. Robson, F.S.A., the consulting architect of the Education Department, and the Clerk produced the receipt for the amount. The Rev. F. Sweet said it was a question whether the board ought to pay it. It was an iniquitous thing that after employing a competent architect to prepare plans they should have to pay a fee to the Department's architect. Mr. Booth said he understood the consulting architect to the Department received £700 a year. The Clerk mentioned that a difficulty had been experienced by the Hornchurch Board in getting the plans of their proposed new schools passed by the Department.

Waterford.—The Cathedral of the Blessed Trinity was reopened on the 26th ult., after restoration and improvements. The cathedral was re-erected from designs by John Roberts in 1773, and in the present works the Classic style in which Roberts wrought has been respected. The galleries have, however, been removed, the lower corridors blocked up, and the building is now lighted from a clerestory range. The cross wall and gallery, which almost shut off the nave from the choir, have been removed, and an arch thrown across the opening, while the organ has been removed to the side of choir, in which have been erected clergy and choir stalls. These fittings are of solid oak. As the Gothic style could not be followed, the architect has gone for inspiration to the Classic choir inclosures of churches in Italy, and the details and sculpture have been modelled on these examples. A low marble wall marks the western limit of the choir. The altar rails, of gilded wrought iron, were executed by Messrs. Singer and Sons, of Frome. The chancel floor has been relaid with Italian mosaic by Messrs. Oppenheimer. Architraves have been added to the windows throughout; and these, formerly mere apertures in the walls, have been fitted with mullions and cathedral glass. The architect for the restoration is Mr. Thomas Drew, R.H.A., of Dublin; Mr. A. P. Sharpe, of that city, was the contractor; and the carving was executed by Mr. Henry Emery, also of Dublin. The outlay has been £4,000.

Yaverland Church, Isle of Wight.—The chancel of this church has been greatly enriched by the munificence of the vicar, the Rev. J. N. Palmer, with stained-glass windows by Mr. E. Frampton, Buckingham Palace-road, and an elaborate reredos of alabaster, extending the whole length of the east wall, the central portion behind the altar having a sculptured representation of Our Lord in Majesty, with groups of adoring angels on each side, under an open-traceried canopy flanked by niches containing statues of Ezekiel and St. John the Baptist, the buttresses forming the divisions being surmounted by angels with musical instruments. The side panelling, from the reredos proper to the north and south walls of chancel, contains double rows of niches filled with carved angels holding the emblems of the Passion, and figures of the four Evangelists in mosaic with much open tracery and carving in the surroundings. This reredos has been executed by Earp and Hobbs, of London and Manchester, from the design by Mr. C. E. Ponting, architect, of Marlborough, and is of a Late Perpendicular character.

Engineering Notes.

The West Highland Railway.—The difficulties that lately sprang up between the West Highland Railway promoters and the contractors, Messrs. Lucas and Aird, have not been surmounted, and on Saturday the latter dismissed other fifteen hundred of their hands, bringing up the total number dismissed to three thousand. Comparatively few men are now engaged in constructing the line, and it is believed that these will be dismissed next Saturday. The contractors paid the fares home of those workmen they had brought from the Highlands and Western Isles. Throughout the route of the line the greatest regret is felt at the stoppage of the work.

COMPETITIONS.

The Birmingham New General Hospital.—The committee have appointed Mr. Waterhouse, R.A., as consulting architect for the building of the new hospital. They have also considered, but have not yet finally decided, the terms of the limited competition for designs and plans, and the list of architects who are to be invited to take part in the competition.

CHIPS.

The new headquarters of the 2nd W.Y.V. Royal Engineers, Leeds, was opened on the 4th inst. The design has been prepared and carried out under the supervision of Mr. William Bakewell, architect (an ex-officer of the corps). Mr. Joseph Pullan is the contractor, and Mr. Charles Goulden has acted as clerk of the works.

The corner-stone of new Sunday-schools for Pencoys, Wendron, was laid on Friday. Mr. Kistle, of Fourlanes, is the builder.

At the Birmingham Bankruptcy Court, William Wake, of Moseley, passed his examination. The debts amounted to £342, and the assets £2. Bankrupt, who had been a publican, admitted that he started in business as a builder with £10 capital, which was then owing for goods.

The Rochdale town council have had a long discussion upon a resolution declaring that corporation contracts should only be given to employers who paid the standard rate of wages. Ultimately the resolution was defeated by a large majority.

The appointment of a surveyor to the estates of the Skinners' Company is announced, Mr. E. H. Burnell having resigned after 30 years' service. Applications are to be sent in to Skinners' Hall, Dowgate-hill, by Tuesday next, the 14th inst.

The Northwich board of guardians have adopted a plan by Mr. Cawley, architect, for new receiving wards to be added to the workhouse.

STAINED GLASS.

South and North Tynedale.—Several stained-glass windows have recently been inserted in churches in South and North Tynedale. A stained-glass window has just been placed in the Haltwhistle parish church to the memory of the late Mr. Joseph Gordon, M.Inst.C.E., a native of that place, and for many years borough engineer of Leicester, and who, it will be remembered, died shortly after being appointed engineer to the London County Council in the autumn of 1889. It has been erected by his widow and children. In Beltingham church, near Bardon Mill, a stained-glass window has been erected to the memory of the late Mr. Lowes, of Allen's Green, by his widow. Three memorial stained-glass windows have been erected in the north transept of the interesting old church of St. Michael's, Warden, by Mr. N. G. Clayton, of the Chesters, to the memory of three uncles. Other two stained-glass windows have been erected in this church. One of these is to the memory of Richard Clayton and his wife, and is erected by their three surviving children. The other has been put in by the servants on the Chesters estates, and is dedicated to the late Mr. John Clayton.

LEGAL INTELLIGENCE.

Architects' Commission for Unexecuted Works.—Eedle and Another v. Alston.—In the Court of Queen's Bench on the 1st inst., before the Lord Chief Justice and a jury, this action, by a firm of architects for fees and sums, &c., paid out, and by quantity surveyors for taking out quantities, was tried. The claim was for architects' fees, £176 11s., and for surveyors of quantities, £183 19s. 6d.—total, £360 10s. 6d. The defence was that the plaintiffs had been employed to make plans for certain work, the expense of which was not to be above £2,000, but that, in fact, it was found that it could not be done under £4,779, so that the plaintiffs' services were wholly useless to the defendant, and nothing was due to them. The plaintiffs carry on business near London-bridge, and in October, 1889, the defendant, occupier of the Prince of Wales Hotel, Paddington, instructed Mr. Eedle to prepare plans for alterations in the house. Mr. Eedle stated that defendant, who was accompanied by his son, said nothing as to the expense, or as to any limit of expense, though as they were going away the son said, "I suppose the expense will be about £2,000," to which, however, Mr. Eedle said he replied that it would cost much more. In the correspondence, however, it appeared to be admitted that the defendant had mentioned £2,000 as the amount he could afford to expend; but it was asserted that there were subsequent alterations which would greatly increase the expense. The alterations at first contemplated, it was admitted, could be done for £2,000, though the parties differed as to whether that sum was mentioned as a limit. But other works were suggested, and the plaintiffs prepared further plans, which were not approved by the County Council, and new plans were prepared, of which, according to the plaintiffs, the defendant approved. Upon these—to ascertain the expense—the plaintiffs employed quantity surveyors, and the quantities were taken out, upon which builders made tenders for the work, the lowest of which was £4,779, on which the defendant threw up the design, but employed another architect, and did certain works to the amount he had contemplated. The plaintiffs claimed for the charges of the surveyors who had taken out the quantities, and also claimed their commission of 3 per cent. on the estimated expense of the works done. The defendant disputed his liability to pay anything. Lord Coleridge said the plaintiffs, no doubt, were entitled to recover something, but they could not be permitted to recover by way of commission on the estimated expenditure. That was a claim which architects might consider reasonable, but which they had never been allowed to enforce. They could only in such a case recover a reasonable remuneration. The plaintiff, Mr. Eedle, gave evidence in detail as to the work he had done on the plans and drawings. A drawing was made, exhibiting an altered front.—Mr. Winch, for the defendant, said his client had throughout said the work must be done within £2,000, and as to the front, he had positively directed that it should not be touched.—Lord Coleridge: But what was the use of saying that in the face of these drawings and plans? I am afraid, Mr. Winch, your client must pay—I do not say all that the plaintiffs claim, but what the jury may consider reasonable. The plaintiffs sent in their charge at the rate of 3 per cent. on £4,779, and the sum paid for quantities. The defendant refused to pay this, but offered 3 per cent. on £2,000, though he refused to pay for the surveyor's "quantities." The plaintiffs offered to submit the matter to the defendant's solicitor and architect, but this was declined, and this action was brought. Witness admitted that the original plan could have been carried out for less than £2,000. Asked how the estimated expense had grown to nearly £4,800, the witness said he had given no estimates; there were many additional works.—

Mr. Franklin, of the firm of Franklin and Andrews, the quantity surveyors employed by the plaintiffs in this case to take out quantities, deposed that his charges were £183 19s. 6d., some of which was for lithography.—Mr. Winch, for defendant, said he did not dispute that the plaintiffs had done a good deal of work, but the defendant had derived no benefit from it. The preparation of plans for an expenditure of nearly £5,000 was wholly useless, and worse than useless, to the defendant, who was not bound to pay for services which had done him no good. The defendant said he had told Mr. Eedle that he desired to expend £2,000 on the house, and explained to him what he desired to be done. He said that good alterations could be made for the sum mentioned, and he would prepare plans. In cross-examination he said he at one time was willing to pay 3 per cent. on £2,000, but that was to avoid litigation. The son was called to confirm his father as to the £2,000.—Mr. Atkinson, in reply, urged that the defendant had not set up any agreement or guarantee by the architect that the expense would not exceed £2,000; and the architect was not bound to inform his employer that there would be an increase of expense. The question was not raised as to the reasonableness of the amount claimed, as the defence was that nothing was due. —Lord Coleridge told the jury that the plaintiffs were clearly entitled to recover the surveyors' charges, which were reasonable. As to the architect's own charges, he objected on principle to a percentage on an amount not expended, and the question would be what was a reasonable amount. But in some cases it was difficult to make a charge in any other way, and here the commission charged was small, and the amount did not appear to be unreasonable. As to the defence set up, the work had been done, and apparently well done, and the defence was that it was of no use to the defendant. But he knew it was done, and done for him. He set up, indeed, that there was an agreement that the expense should not exceed £2,000—that is, that there was a guarantee to that effect, for if it did not come to that, it was nothing. The reasonableness of the charges was not disputed; the only question raised was whether anything was due. The jury asked whether the surveyors' charges should be additional to the architects', or rather not included in them; and one juror pointed out that £360 was 8 per cent. upon £4,779. Lord Coleridge said the reasonableness of the charges was not disputed. The sole question was whether the special bargain had been made—that the expense should not exceed £2,000. The defendant did not dispute that: if he owed anything, he owed £360 10s. 6d. After some further consultation, in which it appeared that one juror dissented from the others, they agreed, and returned a verdict for the plaintiff for the full amount claimed—£360 10s. 6d.

CHIPS.

A new organ, erected at a cost of £220 by Messrs. Foster and Andrews, Hull, was opened on Friday in All Hallows' Church, Sutton-in-the-Forest.

The will of Mr. Thomas Henry Hovenden, formerly of 181, Bishopsgate-street Without, and late of Arbor End, 153, Selhurst-road, South Norwood, surveyor, who died on the 5th inst., has been proved, the value of the personal estate amounting to upwards of £41,000.

A very ornate new pulpit was dedicated on Wednesday last in the parish church of Stoke Fleming, being the munificent gift of a resident in the parish, having cost £300. It is entirely of oak, and was executed from the design of Mr. Edmund Sedding.

Holy Trinity Church, Platt, Rusholme, which has been undergoing restoration, will be reopened on the second Sunday in August.

At the Somerset Quarter Sessions, held at Taunton on Wednesday week, George Henry Price, surveyor, was convicted on a charge of obtaining from Samuel David Kennard, a builder, a cheque for payment of £10 4s., and warrants of other acceptances and bills. Prosecutor, a builder, requiring more money to complete a contract, went to prisoner, who gave him bills which were dishonoured. Prisoner was sentenced to six weeks' hard labour.

In former days the parish church of St. John the Evangelist, Leeds, the fine screen was surmounted, on both its northern and southern parts, by a striking cresting inclosing the Royal arms and the Prince of Wales's feathers. This was removed many years ago, but Mr. Wurtzburg subsequently purchased as much as he could find of the old work at a broker's, with a view to its eventual restoration, and has now at his own expense replaced the casting in its original position. The places of the Royal arms, which are now set up at the west end of the church, have been filled with Christian symbols, designed by Mr. Temple Moore, architect, of Hampstead. The work has been carried out by Mr. Horsman, of Mark-lane, and the carving executed by Mr. Hirst, of Infirmary-street.

Our Office Table.

THE detailed programme of the Society of Architects' forthcoming excursion to Belgium, just issued, gives promise of a very enjoyable trip for the M.S.A.'s and their friends. The meetings extend from the morning of Saturday, August 15th, to Saturday evening, August 29th; but to meet the convenience of those who cannot be away a fortnight, the tour is arranged in two portions, the first extending from the 15th to the 24th prox., the second from the 22nd to the 29th. The party leave Charing-cross Station at 10 a.m. on the 15th, and cross from Dover to Ostend, where they will attend, the same afternoon, an audience to be granted by the King of the Belgians. In the evening the members proceed by train to Bruges, where the Sunday will be passed. Monday, the 17th, will be spent in Bruges, and Tuesday at Ghent, Wednesday at Antwerp, Thursday at Malines, Friday at Louvain, and Saturday and Sunday at Brussels. Monday, the 24th, will be devoted to Mons, Tuesday to Tournai, Wednesday to Audenarde, Thursday to Courtrai, Friday to Ypres, and on Saturday the return journey will be made from Ostend, Charing-cross Station being reached at 5 p.m. The tickets for the excursion for members or friends, which must be obtained before August 1st, are granted at the following rates: —For the whole tour, £12; for the first portion, £9 10; and for the second portion, £8 5s. These very reasonable fares include travelling (first-class boat and second-class rail), hotel expenses, porterage, sight-seeing, and the conductor's fees.

AN heraldic exhibition, promoted in connection with an archæological congress to be held in Edinburgh next month, was opened on Monday at the National Portrait Gallery by a conversazione. In all about 200 persons and corporations have lent articles to the committee, and the display is artistically arranged. Many banners reputedly of great antiquity are shown, including a piece of sage-green silk said to have been carried by the son of the second Earl of Douglas at the Battle of Otterburn, in 1388. Facsimiles of the great seals of Scotland and England since the 12th century, and of all the burghs of Scotland (with the singular exceptions of those of Edinburgh and Glasgow) are shown. The Queen has lent some heraldic MS. and an heraldic roll of the time of Edward III., while the insignia of the various orders of knighthood have also been obtained on loan. Hanging on the walls, with 99 seals dangling from it, is the protest of the nobles of Bohemia, addressed to the Council of Constance in September, 1415, against the burning of John Huss and Jerome of Prague. The grant of arms by "Jehan Smert, Garter, to the Tallow-Chandlers' Company of the City of London," dated 24th September, 1454, is supposed to be among the oldest English grants in existence; and among the Scottish documents of the same description are patents of arms to Sir James Balfour of Pittendrich in 1566, and to Lord Maxwell in 1567. Both are signed by "Adam M'Cullot, Marchemont." These old parchments also include an appointment by Cromwell of Sir James Campbell to be Lyon King-at-Arms (1658). The exhibition is open to the public free of charge.

OUR attention has been drawn to a matter which, if substantiated, seems to us to be about as discreditable an affair as we have ever heard of in connection with business. We are informed that some person has been in collusion with an employé of Messrs. Robert Boyle and Son, and obtaining copies of their plans and estimates for the ventilation of buildings, which have been illegitimately utilised. We observe that Messrs. Boyle have offered a reward of £100 for the discovery of the guilty parties, and we trust they will be successful in unearthing them, and inflict upon them the punishment such conduct deserves.

THE following are the awards at University College in architecture (Professor T. Roger Smith, F.R.I.B.A.):—Fine Art: Donaldson Silver Medal, A. E. Kirk, of Leeds; prize, W. E. Hazell, of London; certificate, 3, T. G. Lucas, of Hitchin. Second-class: H. E. Church, of Clapham; H. E. Matthews, of London. Construction: Donaldson Silver Medal, H. C. Corlette, of Sydney; prize, G. Gonsalves, of Trinidad; certificates, 3, W. H. H. A. Kettle, of Brentwood; 4, F. K. Kendall, of Blackheath. Third class: W. J. Keith, of Ealing; E. Lyon, of Valparaiso; P. E. Newton, of Sydney; E. H. Terry, of London; R. M. Whellock, of Nunhead. Modern Practice: Prize, J. Borrowman, of Godalming. Third class: T. H. Bishop, of Leighton Buzzard; C. W. Dawson, of Croydon.

ANOTHER of the ancient landmarks of Bristol, the old Redland Manor House, is, says the *Western Morning News*, to be dismantled and cleared away to make room for a building site. The manor house was built in the year 1658, and the ceilings of the older portion of the building are ornamented by splendid designs, having carved panels and elaborate mouldings in geometrical patterns. The fine old chimneypieces, richly carved in stone, have been sold to Mr. H. A. Forse, contractor, and will be taken down in the course of the next few days. Two of these chimneypieces have carved upon them the initials "F. G.," and the date "1658." The sundial, which stood in the grounds, is now in the possession of Mr. T. D. Sibly. For many years the house has been occupied by Mr. John Reynolds, a well-known archæologist. The house will be open for inspection during the next fortnight, after which it will be cleared away.

ON Saturday last several members of the Masonic literary society, the Quatuor Coronati, had their annual outing. The train stopped at Sole Street, and the party proceed to Cobham church, where the brasses were inspected, and a paper read on them and the building by Mr. W. M. Bywater; thence to the Leather Bottle, associated with Dickens, followed by a four-mile walk through Cobham Park to Rochester to inspect the castle and the cathedral. At the latter the Rev. Fielding read a paper, and Mr. H. Lovegrove made some remarks on the former roof.

THE local district council for Bristol, in connection with the National Registration of Plumbers, held an examination at the Merchant Venturers' School in that city, on Saturday, when candidates attended from Bristol and various parts of Gloucestershire and Wiltshire, and were examined in the theory and practice of the trade. Sixty per cent. of the candidates succeeded in passing the full examination qualifying for registration. The examiners were Mr. T. S. Pope, architect; Messrs S. Sydenham (Bath) and J. H. Holbrook, master plumbers; Mr. T. J. Edmunds, journeyman, and Mr. W. H. Perry, assistant hon. secretary.

A meeting of the district council for South Hants and the Isle of Wight of the Society for the National Registration of Plumbers was held at the Municipal Offices, Southampton, on Thursday in last week, Mr. Sheriff Bone, J.P., in the chair. Five candidates were recommended for registration as the result of the examination recently held in Southampton.

A memorial, signed by many men of science, art, and letters, was forwarded on Tuesday by Sir H. Roscoe, M.P., to the Lord Mayor, praying that the Corporation of the City of London would grant a site on the Embankment for the New English Art Gallery about to be erected at the sole cost of Mr. Henry Tate, and for which a site adjoining the Science Collections at South Kensington has been promised by the Government.

At Tuesday's meeting of the water committee for Liverpool, it transpired that whilst from five to six million gallons daily are being discharged into the pipes at Vyrnwy less than two million gallons reach Prescot. The balance of about four millions is lost by the way, mainly, it is supposed, at the temporary tube laid across the bed of the Mersey at Fidler's Ferry, Warrington. Mr. Deacon, the engineer of the works, is at present engaged on an important arbitration arising out of the construction of the original tunnel under the Mersey, built by Messrs. Newell and Monk, and the committee resolved to defer further discussion until Mr. Deacon is at liberty to deal with the matter.

At the last meeting of the town council of Colchester, the Museum Committee reported that they had considered the desirability of identifying such houses or buildings as possess historical associations for the information of visitors and inhabitants of the borough, and recommended that the committee be empowered to place suitable tablets upon any such buildings as they might deem worthy of such notice, with permission of the owners and occupiers. The report was adopted. At the same meeting it was decided to have a conference by this committee with three members to be appointed by the Essex Archæological Society, as to the future management of the museum in the castle.

PROPOSED · CHURCH · SUTTON · ST HELEN'S · LANCASHIRE ·

MESSRS PALEY & AUSTIN · ARCHITECTS ·

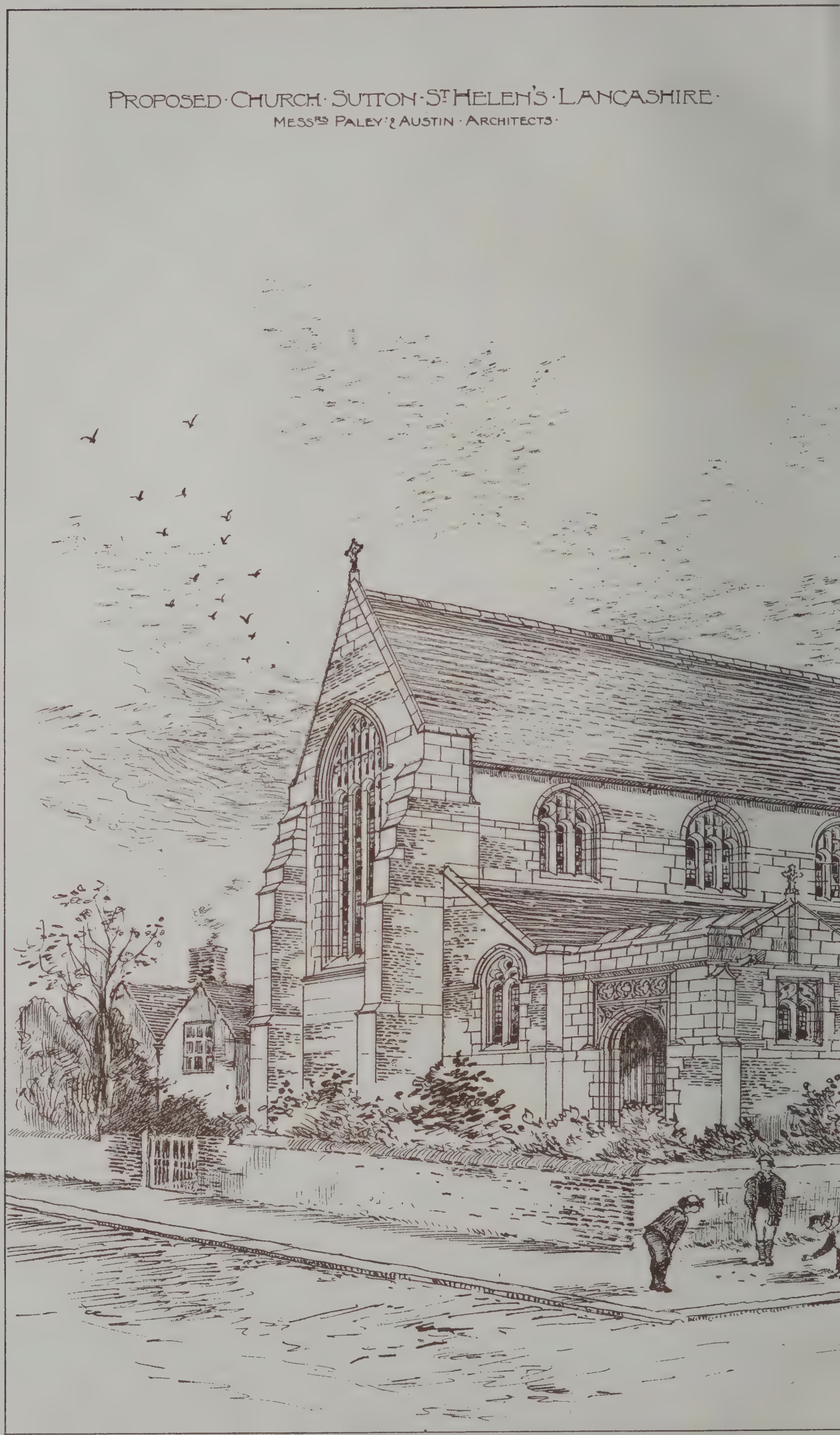






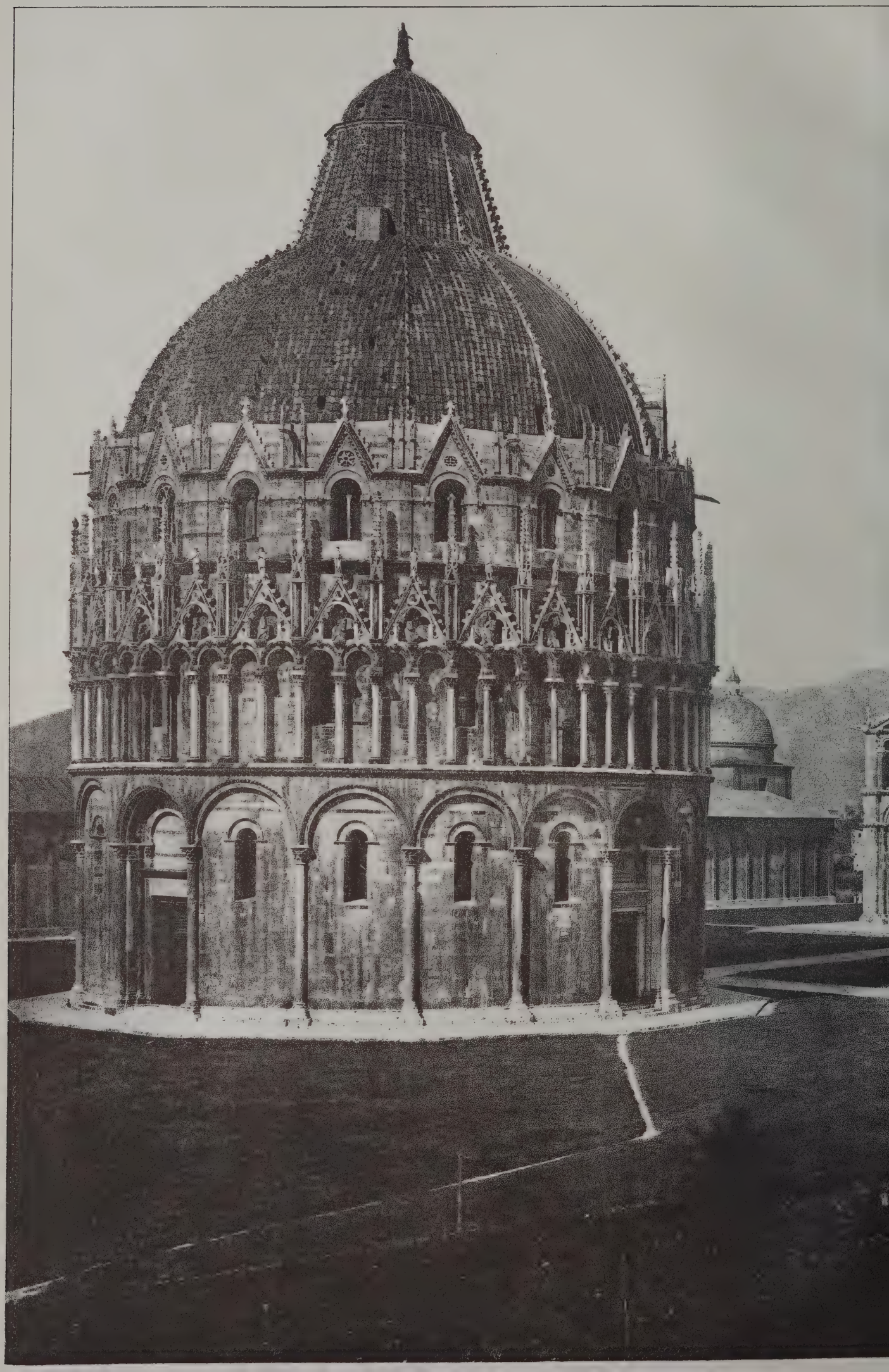
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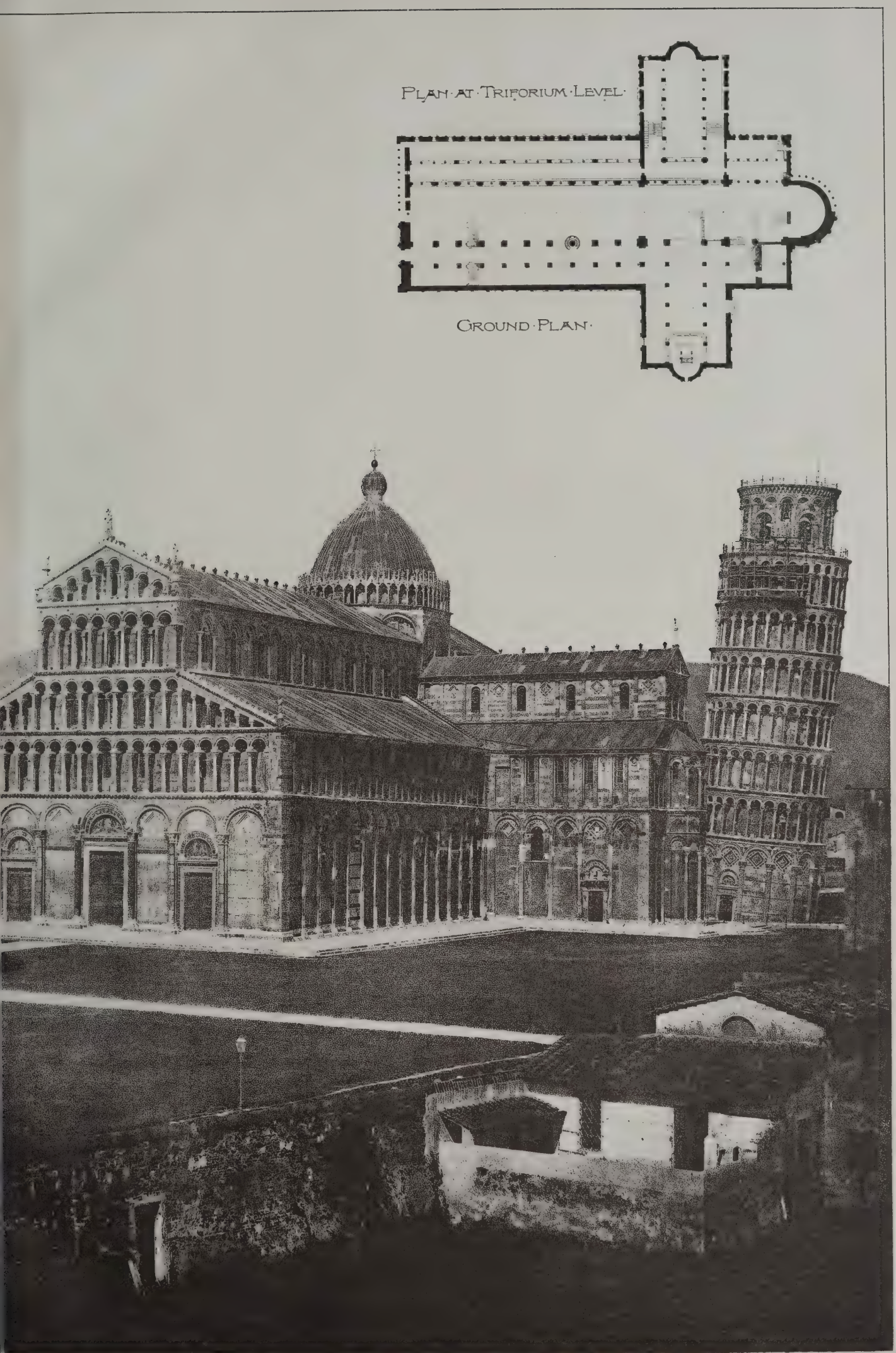


"PHOTO-TINT," by James Akerman, 6 Queen Square, London, W.

"SUMMER" BY W. REYNOLDS-STEPHENS.

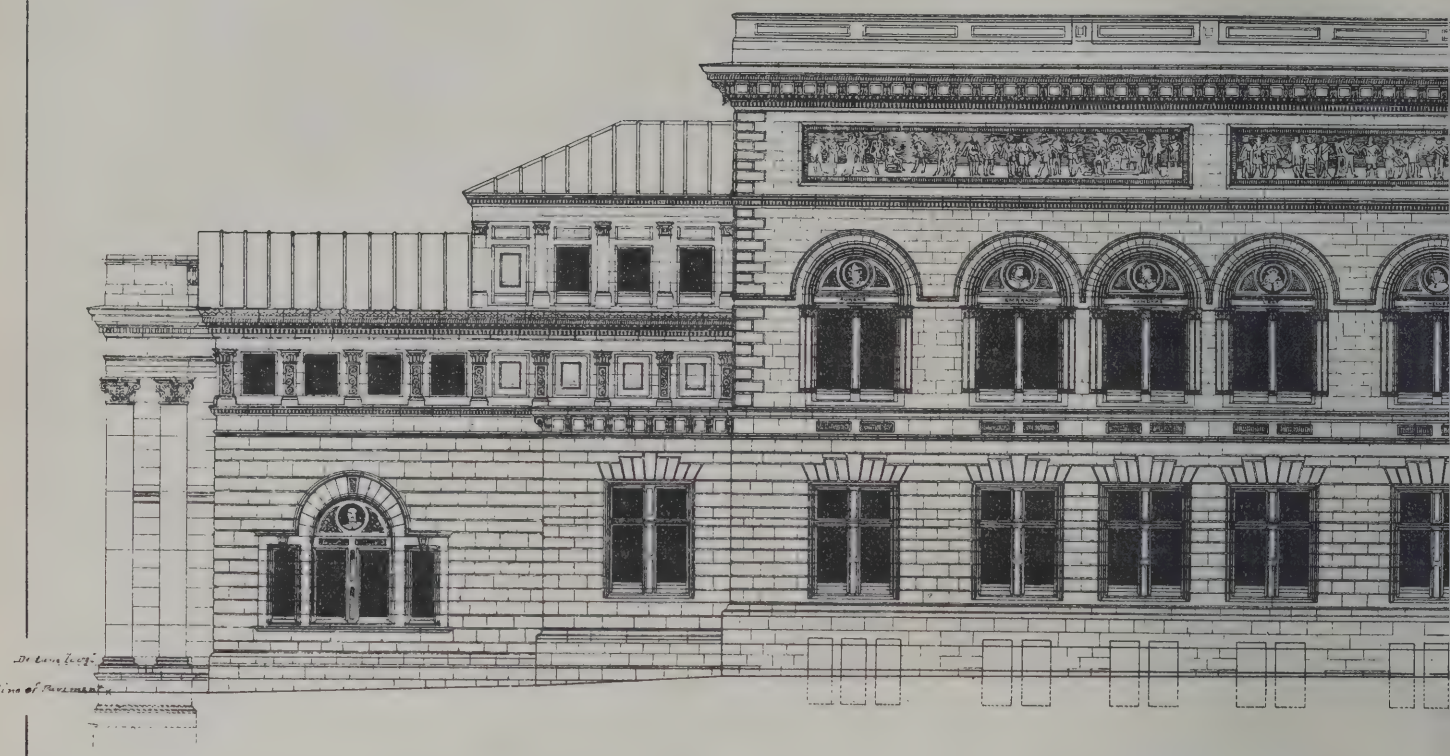
MURAL DECORATION EXECUTED FOR THE ROYAL ACADEMY IN THE REFRESHMENT ROOM OF BURLINGTON HOUSE.





"Photo-Tint," by James Akerman, 6, Queen Square, London, W.C.

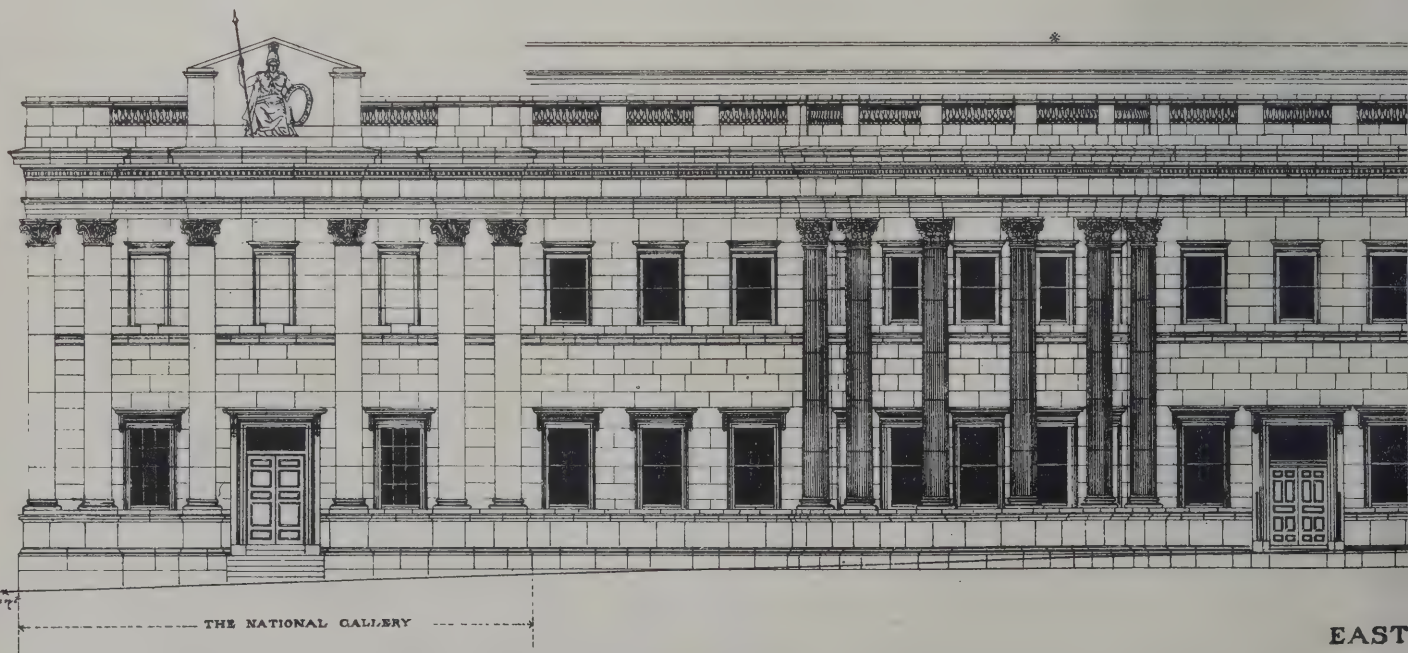
THE NATIONAL PORTRAIT GALLERY. EWAN CHRISTIAN. ARCHITECT.



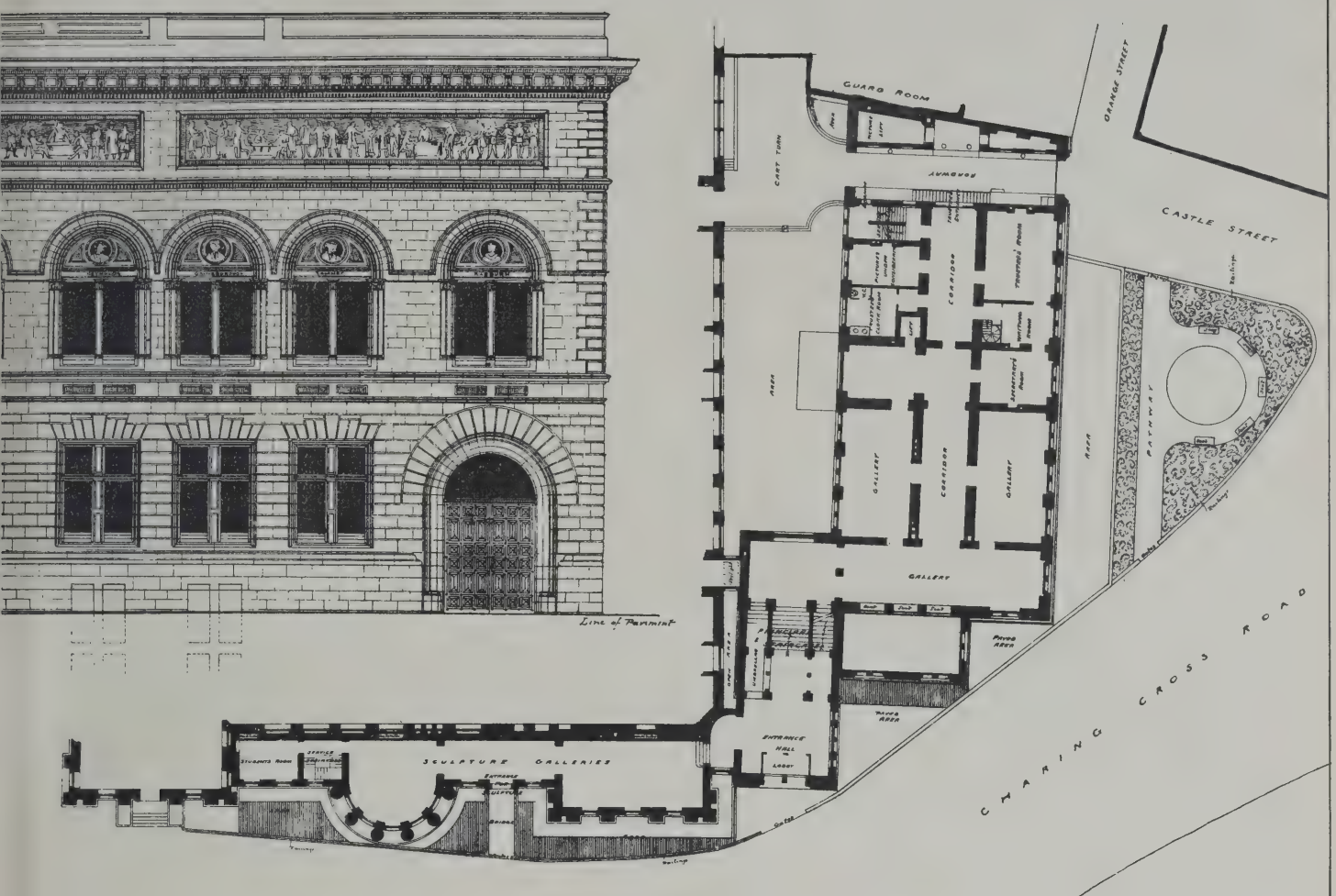
NORTH ELEVATION



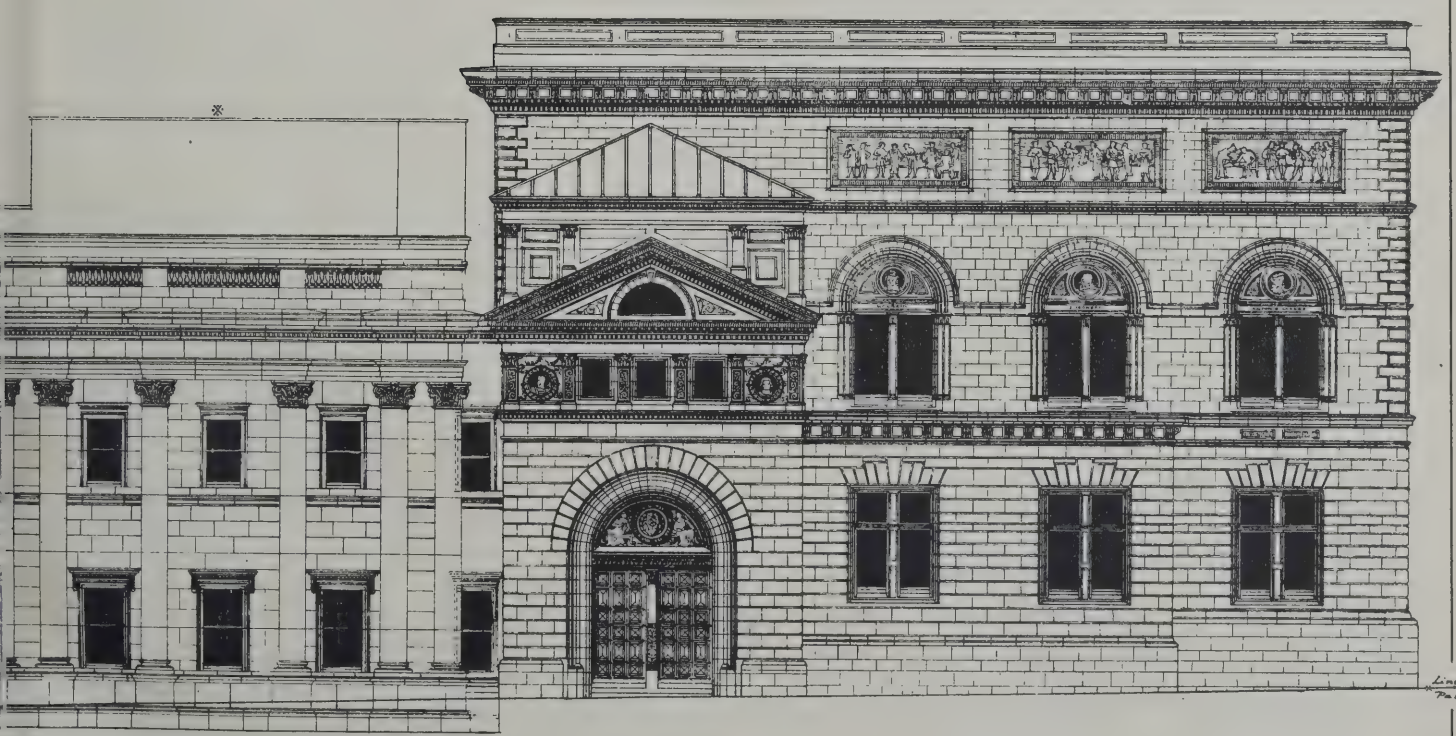
* These lines indicate the height of the National Gallery as existing at the present time



EAST



GROUND FLOOR PLAN



EVATION

Photolithographed & Printed by James Akerman & Son, Queen Square W.C.

THE BUILDING NEWS
AND ENGINEERING JOURNAL.
VOL. LXI.—No. 1903.

FRIDAY, JULY 17, 1891.

NEGLECTED STUDIES.

THOSE in full practice as architects often lament their ignorance, or, rather, want of expertness, in many branches of their vocation. They look back on the years that have passed with a feeling of dissatisfaction that they have neglected many studies that would have been of incalculable value to them. We suppose everybody and every professional man in every vocation can regret their lost opportunities—the fact of the matter being that those who are articled and follow a profession, no matter what it is, are confined to a conventional groove or class of practice which gives them few opportunities of following side or collateral branches of their profession. To a certain extent, a scheme of architectural education and an examining test will supply this deficiency by guaranteeing a more complete education to the architect, though it will guarantee only to him so much theoretical or textbook knowledge as will be sufficient to pass by a sort of cramming process, but not that intelligent acquaintance with facts and principles which is really, after all, the possession of an educated mind. Still, against all that can be urged to lessen the advantages of a scholastic *régime*, it has the decided merit of not allowing valuable knowledge to be neglected.

What are the branches and studies most generally neglected by the architect? These, of course, will depend upon his training and opportunities. A young man in a borough surveyor's or engineer's office will pick up a great deal of the practical and useful, and become more of an "all-round" man in his profession than he who has served his articles with a London architect in large practice. This goes without saying. He will probably know something of surveying and levelling, building by-laws, drainage and sanitary work, all of which things the young London pupil knows nothing at all about, or if he does, only superficially. On the contrary, the London pupil will necessary become a better and more expert draughtsman than the provincial student, and have a knowledge of one or two styles, and perhaps the requirements of a certain class of buildings, so that it will entirely depend on the office routine and experience of each. We are not going to say that each of these differently conditioned pupils would be better for the knowledge of the other. Perhaps they would be—perhaps not; because we are not of the opinion that a general "all-round" or jack-of-all-trades' training is absolutely required by a professional man who has to follow one vocation. Every man needs to have his mind's eye and energies directed to the particular branch he has made his own, or to that for which his faculties fit him. We do not believe that it is better to divide one's energies into a dozen or more channels, than into one or two. One thing is pretty certain: it is, that the power of seeing rightly is the secret of all educational power. The "art of seeing," Adam Smith says, "governs the whole conduct of human life"; Ruskin says the same of art, by which is meant that the man who is most successful is he who can see the clearest, has a sense of the right proportion of things, and can discriminate differences and weigh qualities.

To mention the many branches to which the ordinary architect would plead ignorance connected with the practice of his calling is not our object. By neglected studies we now point to a few of those matters which have more to do with the general conduct of professional duties. The measurement and valuation of artificers' work is one item of the architect's training which seems to be overlooked. Except those who have been trained in a practice where "quantities" are taken out, there are not many who are able to make estimates of cost with any approximate accuracy. A man as an architect may be none the worse for not knowing how to set to work systematically to take the dimensions of work from his drawings, cube and square his dimensions, and make a fairly good bill; but he has certainly lost a useful aid to a practical acquaintance with his work. If he never got out an estimate himself, the knowledge of measuring labour and material would teach him how to economise, and how to check a builder's account, to say nothing of the value of such a training as the means of increasing his practice. To have to submit to the dictates of a quantity surveyor, owing to one's inability to analyse a bill, or to the over-reaching demand of a contractor for some "extra," is not satisfactory. A knowledge of the qualities of materials, such as stone or timber, is a study equally neglected and equally coveted. What would not an architect give if he could be sure that the particular kind of stone he specified was being used, or that it was being placed on its "natural bed"; or that his floors were being laid with Onega or Christiania battens of "good quality." Though as a designer he may be none the worse for not knowing good from bad materials, as an architect he is certainly incompetent to be intrusted with a building. Yet how is he to be taught the difference practically unless he has had the opportunity of visiting quarries or of instruction in the workshop? Theoretical or school knowledge will not give it to him. A course of technical instruction will alone enable him to become a judge, but his opportunities have gone by.

The strength of materials or the mathematical education necessary to make calculations for such things as a girder, a column, or an iron truss, is a branch of the architect's education often neglected, and untaught in the general routine of an office. To become fairly well informed on this important branch of construction requires early self-study, or a course of lectures and demonstration in some school. Not many are able to apply the principle of "moments" to a girder practically; fewer are able to equate the total intensity of stress to the strength of material in a pillar or strut, so as to show what its size should be. The formula or principle may be understood; but the application has never been mastered, and the designer has to consult either a table of results, or leave the matter to the manufacturer. The mathematics of construction is, we admit, not a very attractive subject to the artistic mind, whose instinctive perception of what looks strong enough and agreeable to the eye is often preferred to a laborious calculation. But occasionally, notwithstanding a fine sense of what is right, the practitioner goes astray if he has no means wherewith to verify and check his opinion. Many an engineer's fee might have been saved if practical mathematics had been learned, or if the method of drawing a bending moment diagram for a maximum loading was known. But the subject is neglected during pupilage. It is not a fascinating study to many minds, and it requires close and unremitting labour to become proficient practically. Handbooks and published lists have no doubt lessened the irksomeness of calculation, and we have now sections of joists published side by side with their safe loads, as those of Messrs. Measures Bros.; but still these helps do not supply the architect with the means of ascertaining the strength of any new or special structure. Sanitary science till lately was not a subject which found much favour in the profession. It was relegated to the "plumber," whose mystic craft consisted mainly in concealing pipes and making drains as impervious as possible; but of late years more interest has been taken in the question of sanitation. Nevertheless, it is a neglected study by many architects who, by handing over the work to a specialist, does not trouble about details. Probably the most neglected portion of the subject is that relating to "fittings"—which to specify, and how they should be used in a system of drainage? To know the chief points of a good disconnecting trap, a closet apparatus in their many varieties, a flushing cistern, or a gully trap, requires a special study. Only an experience gained by attention can give one the knowledge of the best mode of ventilation under particular circumstances. Engineering questions, such as modes of heating and the necessary calculations to be made to find the required supply of fresh air and the abstraction of heat by windows and walls; the principles to be observed in the choice of stoves and in electric lighting will occur to every practitioner.

There are two or three other studies which appear to receive much less attention than they did formerly, and to which we may usefully refer: we mean perspective and the art of sciography. It is true we have competent artistic draughtsmen who are adepts at representing architectural buildings in every conceivable, or almost inconceivable, position; but a very small per-centage of these have mastered the science of perspective projection. These experts draw by the eye, as many amateur musicians play by the ear: but few of them would be able to show the scientific projection of a cupola or the points on the curve of a capital seen in parallel perspective. Drawings we sometimes see ignore or travesty the laws of projection. Architects of the last generation were more careful students of the science. In France and Germany, perspective and solid geometry are systematically studied as a part of the architect's course; but we find young English draughtsmen depending entirely upon their eye, even when that organ is inclined to make some very curious slips. The clear conception of the projection of lines differently placed in relation to the picture plane, is the A B C of the art of perspective. The methods for finding the points belong to practical geometry, a thorough knowledge of which is essential; but how few are able to project a complex solid on geometrical principles. The perspective of a square building with its two sides receding from the picture-plane—in other words, the angular perspective of a building—is often glaringly wrong: it is drawn as if we could see as much of the rapidly receding side as we do of the side more nearly parallel with the plane. Or, to state it otherwise, the draughtsman has tried to show as much of both elevations as possible, with the result that a distorted view of the building is obtained. This sort of representation is indefensible. How often circles high above the horizontal line, such as those of the tambour of a dome, are drawn with a much too rapid curvature. The other day we saw a perspective of a dome in which the curves were preposterously sudden, and only suited for a dome of twice the height. All these errors, intentional or otherwise, are misleading; very often they are the result of an imperfect study of planes, their inclination to the picture plane, and their relative positions above the eye. Again, how much the artistic draughtsman loses by not knowing how to put in his shadows. Here, also the value of a knowledge of projection by parallel lines is evident. There are few drawings in which shadows are introduced with any accuracy—we, of course,

except French and other Continental practice. Surely elevations lose much of their realistic effect by not showing the projection of shadows of features like columns, cornices, and towers on the receding faces; and when these shadows represent the actual projections (as when the rays are drawn at an angle of 45°), they contribute to the value of the drawing. A very little study suffices to enable any architect to throw his shadows with approximate truth, and we know many excellent draughtsmen who would be glad if they had such an elementary knowledge of the methods by which a shadow of a tower, a gable, or a chimney could be delineated with tolerable accuracy against the receding and inclined surfaces of a building. Unfortunately, there is no royal road to these accomplishments.

COMMISSION ON ESTIMATED EXPENDITURE.

ANOTHER and somewhat similar case to that of "Cutler v. North" came before the Court of Queen's Bench and the Lord Chief Justice the other day. Again it was a case of disputed commission to an architect on an estimate which the defendant affirmed he limited to a certain amount. The defendant owner employed another architect to do the work at the sum originally contemplated, whereupon the first architect claimed for his own fees and that of the surveyor for quantities on the extended amount of £4,779 estimated by the latter. As in the greater action before Lord Coleridge, the question turned as to whether the sum alleged to be named by the defendant of £2,000 was mentioned as a limit, and upon this point the whole issue at law rested. The reasonableness of the charges made by the architect of 3 per cent. on the estimated amount was not disputed by the defendant; the sole question was, Had a special bargain been made between the parties? In reading the report of the case we have given (p. 61), the defence was that the plaintiff had been instructed to prepare plans for a certain work, the cost of which was not to exceed £2,000; but that after quantities had been prepared and tenders received, it was found it could not be done under £4,779. The architect plaintiff declared that the defendant said nothing about a limit of cost, though the first-named sum had been mentioned in a letter. Additions and alterations were suggested; other plans were prepared to meet the requirements of the County Council, and these were approved by the defendant. Upon these the plaintiff's claim was made, altogether amounting, including quantities, to £360 10s. We have here again the old dilemma: no definite understanding as to the limit of expense, or if there was some vague and undefined mention of a limit of cost, it was subsequently rendered of no account by accepting altered plans, from which quantities were prepared. By accepting altered designs the defendant tacitly admitted his liability to pay on the extended amount. But we find him refusing to bear the cost of the quantities, and only offering to pay 3 per cent. on the limit of the alleged £2,000. It was, of course, easy for the defendant to have asked for an estimate of the altered building; but according to the evidence he did not do so, and though there were many additions, no estimates were given. One cannot wonder at the verdict for plaintiff for full amount claimed. If employers limited in their means do not ask for estimates, and make an agreement with their architect that the cost is not to exceed a certain amount, they have themselves to blame. It is not to be supposed that an architect is to suggest such a limit himself, nor is it fair that he should be expected to bind himself to a certain sum when his employer at the same time is allowed to suggest alterations and additions. Lord Coleridge pointed out the liabilities of an employer to pay the surveyor's charges, and, of course, this has never been disputed, as the claim rests on several previous decisions based on an architect's implied right to appoint a surveyor to take out quantities.

But there was an important point in the judge's remarks which very closely concerns the architect—namely, that an architect could not be permitted to recover by way of commission on the estimated expenditure. Although the profession, he said, thought such a charge reasonable, it could not be enforced. In short, the argument amounts to this: that an architect cannot legally charge by commission on his estimate, but can only recover what is considered to be a *reasonable* remuneration. The question is, what is "reasonable"? Is it an amount which a judge or a jury allow to be reasonable, or one which expert evidence pronounces to be so? One may think a charge to be reasonable, which another declares to be unreasonable. A jury would probably place a lower estimate on an architect's services than would a professional man; they would not be able to estimate the extra labour entailed in making additions or alterations to a design, the amount of thought expended in a certain building. Therefore there is an element of much uncertainty in this view of the case, though it is one to which architects, under the existing state of the law, have to submit. The legal view clearly repudiates a per-centage commission on expenditure, estimated or real, and is a standing protest against this mode of assessing remuneration. No one will say it is reasonable to charge at the same rate for a building which costs £10,000 as on one which costs only £500, providing that the actual thought and skill required in both are the same. To make such a charge reasonable it would imply that the greater building involved 20 times as much skill as the smaller one; whereas, in practice, we know that the opposite is more frequently the case. The illustration, for instance, is equivalent to repeating one design for a house 20 times, as in a row or a street, and therefore it is reasonable that a reduction should be made in the commission. But an excess of expenditure caused by additions and alterations to a design is somewhat different. Alterations to plans of a building which is estimated to cost £2,000, but which ultimately costs over twice as much, incur increased labour and skill, and, therefore, such a case stands on a different footing to that we have mentioned. The building grows in size and complexity, requiring altered arrangements and details, and the architect is certainly entitled to be paid on the increased expenditure; but it is otherwise when the same design is simply enlarged or repeated. Of course this differing circumstance has to be taken into consideration in assessing the architect's remuneration. A "reasonable" remuneration, from a lawyer's point of view, is intended to check the temptation of the architect to increase expenditure. He is often credited, justly or unjustly (let us hope the latter for his own reputation) with running up the cost. Of course there is a distinction to be observed between charging one's commission on real expenditure and only estimated expenditure. A charge of 3 per cent. on the estimated cost for plans and specifications for a building that is not carried out is allowed to be reasonable; it is, in fact, the only basis on which an architect can charge commission for a design not executed. The lowest tender is a fair amount to charge upon. But even this amount may be questioned by a jury, who may doubt whether the tender is a reasonable one. Lord Coleridge said, in giving his decision, that he "objected on principle to a per-centage on an amount not expended, and the question would be what was a reasonable amount? But in some cases it was difficult to make a charge in any other way." No doubt the scruple his lordship entertained about the principle of commission was really that architects ought not to have to make their own charge on estimates prepared by them or for them—that they ought to be perfectly independent of the cost of their designs. We cannot help seeing there is much force in this conclusion. It would be better to charge for the time and labour incurred in the preparation of the design, each man according to his professional position or reputation valuing his own time. Even then the jury's test of "reasonableness" would often conflict with the architect's claims. One man would probably value his time at just double that of another; but in a few years members of the profession would find their level, and their services would be estimated accordingly, just as the painter and sculptor can ask his own price. Meanwhile it will be well for the profession if they regard estimated expenditure as only one of the means of ascertaining their proper remuneration, not as a measure of the real skill and labour expended on a particular kind of building, which may be more, sometimes less. The lessons to be derived from recent decisions on charges founded on expenditure are important also. There is no justification for a client denying his liability after he has allowed his architect to proceed without imposing by writing a limit as to cost, and there is every reason for the profession to be careful in not committing themselves to verbal statements as to cost.

HOUSING OF THE WORKING CLASSES.

ONE of the most important matters which the London County Council have been considering of late is the housing of the working classes, and the Act passed last year gives full power to the Council to enforce its provisions. Various amendments have been incorporated in the new Act. District authorities will be able to secure in a far more able manner than formerly the better provision of dwellings for the poor. As our readers are aware, a conference with district authorities and their officers was held in December last, and the vestries also convened a conference of representatives of different vestries early in the year. Subsequently, as a result of these conferences, a resolution was passed by the London Council to encourage district authorities to "initiate reconstruction schemes for small sanitary areas under Part II. of the Act, and pledging itself to contribute to such schemes, when dealing satisfactorily with such areas, and when the Council is satisfied of the need of assistance." We hear that, as a result, several vestries have applied to the Council, and that applications for loans have been made.

Referring to the Millbank Prison site, the report of the Council mentions that £2,000 per acre was offered for eight acres, forming the back part of the site, but was refused; afterwards the price was increased to £3,000 per acre, with a like result. The price asked was £5,000 an acre. The Government were, under the Housing of the Working Classes Act, 1885, enabled to offer the site, or part of it, to the Council at a "fair market price"; but in the clause of the Act no mention was made of the purposes for which the site was to be used, and it appears from the report "That the full commercial value is above the price that could be profitably paid for the purpose for which the sale was intended." Therefore the committee think that the acquisition of any part of the site for rehousing must be treated as abandoned as far as the Council are concerned.

Several improvement schemes under Part I.

of the Act have been contemplated. We may mention the Bethnal Green Boundary Street Scheme, described by us last year, in which an area of 15 acres, comprising 730 houses, is dealt with, representing about 5,720 persons. The houses are old and dilapidated, and the streets and courts unhealthy. The death-rate for this area is as high as 40 per 1,000. This scheme only awaits the Home Secretary's decision.

At Shoreditch and Southwark other unhealthy areas have been reported upon under Torrens' and Cross's Acts, and are now under consideration; and the committee report other cases at St. Pancras, Greenwich, Shadwell, Limehouse, Deptford, &c., that are under consideration. The activity of the Council may be shown by the number of cases of insanitary areas and houses brought before them. During the year no less than 270 insanitary areas and houses have been dealt with, or are being considered. The unfitness for habitation of 709 houses has been brought before the committee, many of which are the subject of proceedings by district authorities. Under the new Act we hope local authorities will take advantage of the powers conferred upon them, and make representations of all insanitary houses and areas, fearless of consequences. Every facility has been afforded them for so doing. Tabulated forms have been prepared and sent to various vestries and boards; but a great deal of responsibility falls necessarily on the medical officer who has to make an official report. To aid him in this onerous duty, he is recommended to keep a register of all unhealthy dwellings with a view to periodical publication. The tabular information will be of great value if the subordinate authorities act in concert with the London County Council; but there is yet a good deal of friction to be overcome, and we are afraid that the unwillingness of many of these local authorities to act will seriously mar the success of this scheme. There is still a considerable amount of jealousy and opposition at the action taken by the Council.

HOT-WATER ENGINEERING.—VI.

Supply of Hot Water for Baths and Domestic Purposes.

THE CYLINDER SYSTEM.

THIS system derives its name from the fact that a cylindical-shaped reservoir is used instead of the square tank in the tank system, although this is not always the case, as will be seen. Another difference between the two systems is that the reservoir (cylinder) is placed at the lowest possible point, instead of being situated at the top of the house, as described in the last system.

It will be best to first explain why a cylinder has nearly always to be used in this arrangement instead of a tank. The capacity may be the same in either case—that is to say, for a certain sized apparatus the reservoir would be of the same capacity whether the works be upon the cylinder or tank system, so no difference exists in this respect. The difference in shape is entirely due to the much greater strain that is brought to bear upon the reservoir in the cylinder system than in the tank system, as in the former there may be 60ft. vertical height from the cylinder to the cold-water cistern that feeds it, whereas, in the latter, 10ft. (vertical) is a more common measurement, very frequently less.

The cylindrical shape is best able to withstand this strain, as can be judged from a maker's list, which reads as follows:—

Galvanised Wrought-iron *Cylindrical* Hot-water Tanks.

Thickness of plate—				
$\frac{3}{16}$in. ..	$\frac{1}{4}$in. ..	12G. ..	14G. ..	16G.
Tested to, per square inch—				
40lb. ..	25lb. ..	— ..	15lb. ..	5lb.

Galvanised Wrought-iron *Rectangular* Hot-water Tanks.

Thickness of plate—				
$\frac{3}{16}$in. ..	$\frac{1}{4}$in. ..	12G. ..	14G. ..	16G.
Tested to, per square inch—				
10lb. ..	5lb. ..	4lb. ..	3lb. ..	1lb.

It will now be seen that the only reason for using the cylindrical shape is because square tanks are, as a rule, unable to bear the pressure that is exerted below the cold-water cistern; but if the distance, by some arrangement, were but small, then the cylinder system could be carried out with tank for the reservoir just as well as using a cylinder.

Although the question of strains or pressures exerted by water comes under the heading of hydrostatics, it is perhaps desirable to deal with it here, so far as it relates to these works. Without a correct knowledge of this subject it is impossible for the engineer to judge what strength of reservoir he needs under certain conditions, and should too light a one be used, it will assuredly leak.

The pressure exerted by water in pipes is 1lb. per square inch for every 2ft. 4in. that the pipe extends in height. Horizontal pipes do not count, but pipes that slope cause a pressure equal to the height between the highest and lowest point of the pipe. If a sloping pipe extended 50ft., and terminated 3ft. higher than where it started, then the pressure exerted by the water within it would be equal to a vertical pipe 3ft. high—no more. From this it will be seen that to arrive at the pressure or strain exerted in a cylinder or tank, we have simply to measure the vertical distance from the water level in the cold cistern, down to the reservoir, and by allowing 1lb. to every 2ft. 4in. of this distance we get the total pressure exerted per square inch. This is irrespective of how the system of pipes may extend about; but, of course, if a tank were fed by an intermediate cistern, as described in the last paper, the pressure would be calculated from that, and not from the house cistern.

This pressure that has been referred to is merely the weight of the water, and is arrived at by taking the contents of a pipe, 2ft. 4in. long and of a diameter equal to one square inch, which will hold exactly one pound of water. If a boiler had a pipe of this length and diameter screwed into the top of it, and then filled, its contents would naturally exert a pressure of one pound upon the interior of the boiler, but not a pound distributed or spread over the area, but one pound upon every square inch of the interior, bottom, top, and sides alike (see any elementary work upon hydrostatics). This peculiar law will make it clear why reservoirs, situated some distance below the cold-water cistern, need to be so strong, as the total pressure they have to withstand without leakage is enormous. A medium sized cylinder, fixed, say, 40ft. below the cold-water cistern, would have to bear a pressure of 17lb. per square inch, representing in the aggregate, about 10 tons. The rough and ready method of calculating pressure is to allow 1lb. for every 2ft.—i.e., 40ft. vertical = 20lb. pressure per square inch.

There is one other peculiarity to explain in reference to this pressure, which is, that the pressure is exerted precisely the same whatever sized pipe is used; that is, if the cold-supply pipe between the house cistern and the hot-water reservoir be $\frac{1}{2}$in. or 1$\frac{1}{2}$in., the aggregate strain in the reservoir will be exactly the same. This is not readily understood by everyone, chiefly owing, perhaps, to a little difficulty that exists in explaining the reason clearly, in a limited number of words. It was just explained that the water that could be contained in a pipe 2ft. 4in. long and of an internal diameter of 1sq.in. would weigh 1lb.; or, in other words, this pipe would hold 1lb. of water if filled quite full. Now, if we could have an upright column of water 2ft. 4in. high, and 1in. square, it would press with a weight of 1lb. upon the space on which it rested, and which space would be 1in. square. If we took another column and placed it beside the other, we should get a pressure of 2lb. without increasing the height; but note, this 2lb. weight would be exerted on 2sq.in. On the other hand, if the column was the same height, but only $\frac{1}{2}$sq.in. in substance, then the weight of pressure would only be $\frac{1}{2}$lb.; but here again note: the pressure would only be exerted upon $\frac{1}{2}$sq.in. area. From this it will be seen that a cold supply pipe of $\frac{1}{2}$in. diameter brings about a pressure in a cylinder of $\frac{1}{2}$lb. for every 2ft. 4in. of its height, but this $\frac{1}{2}$lb. is exerted on every $\frac{1}{2}$in. of the interior, whereas a pipe of 1in. diameter brings about a pressure of 1lb. for every 2ft. 4in. of its height, but this 1lb. is exerted on every 1in. of the interior, so that the aggregate result is precisely the same.

Fig. 19 shows the cylinder system of apparatus in its most simple form, such as might be erected in moderate-sized property in which the pipes

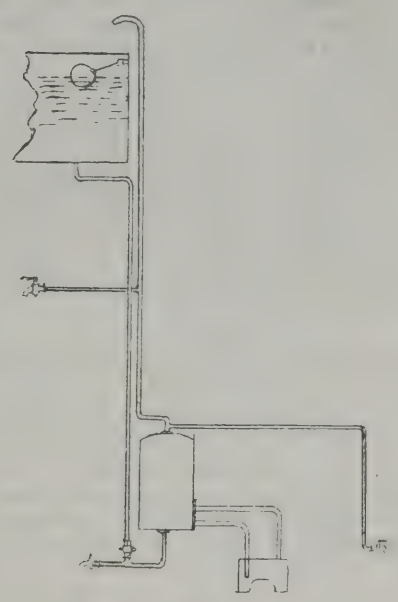


FIG 19.

do not extend far above or away from the kitchen. Where the taps have necessarily to be a fair distance away, then the service pipe which is connected in the top of the cylinder must be "returned," as will be described shortly.

The first and chief peculiarity of this system to be noticed is the position of the cylinder. This is always placed as near to the boiler as can be conveniently arranged; and in any case it has to be fixed at a low point, as all draw-off services are taken from the pipe which extends away from the top of it. As a rule, the bottom of the cylinder comes between 12 and 36in. above the top of the boiler—it is rarely placed higher, as at least 12in. should be left between the top of the cylinder and the ceiling, for the convenient connection of pipes, &c. There is no gain whatever effected in placing the cylinder more than 24in. above the boiler, unless it is to avoid some obstacle or structural impediment. There is nearly always a convenient recess on one side of a kitchen fireplace. If not there, possibly the scullery is situated at the back, and the cylinder can be placed there. Occasionally instances occur in which a place for the cylinder cannot be made anyhow, the only space being a square opening over a cupboard. In this case it becomes necessary to use a square tank; but if a fair pressure of water has to be withstood, the tank will have to be made of very thick plate. The tank maker should be informed of the circumstance, that he may have it tested accordingly. It is a most unfortunate job to have to take out a leaky tank or cylinder after the apparatus is all completed; it is always a reflection upon the quality of the work.

Sometimes the available space will only admit a cylinder lying lengthwise. There is no serious

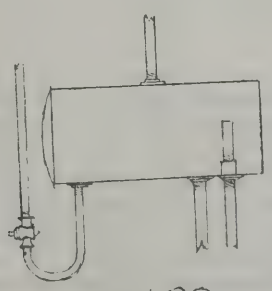


FIG. 20.

objection to this—its odd appearance is the chief drawback; but it is better in results than using a square tank, unless the pressure be light. In this case the connections would be made as Fig. 20.

In this last illustration it will be noticed that all pipes are connected into the cylinder with

flanges. This is a very necessary feature, and cylinders should always be ordered with the holes cut, and flanges affixed in the positions required. Makers' list prices always include providing two flanges (sometimes more); any more than these are charged for extra. A far superior joint is made with a flange than with backnuts, of better appearance, and decidedly quicker.

Cylinders are made with manlids or with loose tops, or without either. The writer considers that the manlid is preferable to the loose top for getting at inside connections; but if the flanges are ordered to be affixed in the right places, then there is no occasion for either, and a saving of several shillings is effected. A cylinder without a manlid or loose top cannot be opened; but this is no objection: the flanges permit of all the joints being made from the outside, and these reservoirs never want cleaning out.

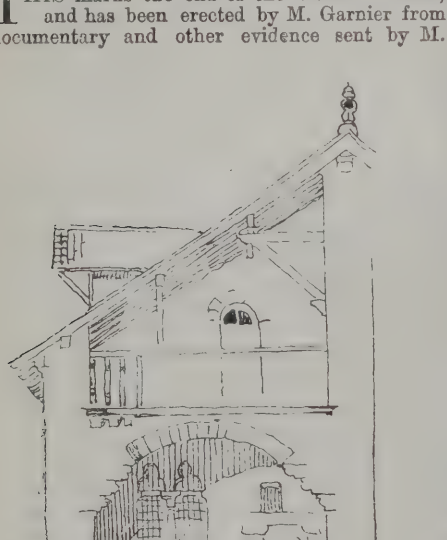
THE "HISTORY OF THE HABITATIONS OF MAN."

By BANISTER FLETCHER, JUN.

(*Continued from page* 836, *Vol. LX.*)

SCANDINAVIAN HOUSE.

THIS marks the end of the Invasion Period, and has been erected by M. Garnier from documentary and other evidence sent by M.





Romanesque House B 89
Nº 160

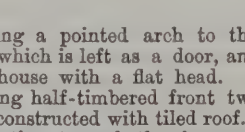
Boberg, a Swedish architect, who has made a special study of the ancient habitations of the Scandinavians. It is constructed entirely of wood, from the same forests of Norway and Sweden, which still give out such enormous quantities of wood, and which were then used by the Northmen for building their sturdy ships. This, then, ends the Invasion period.

When the invasions ceased, and civilisation asserted itself by slow degrees, types of dwellings common to the whole of Western Europe were produced, and M. Garnier commences with a Romanesque House of the 10th century (No. 160), the plan and a sketch of which I give above.

The entrance, it will be seen, is under a segmental archway, the arch itself resting against the upper of three corbelled courses. Over the entrance is a recessed balcony with wooden balusters. It is covered with a sloping roof covered with tiles, and a dormer window. The windows where they occur are coupled with Romanesque-like capitals between, the windows themselves being straight-headed, with a trefoiled arch formed in the solid over (as in the New Law Courts by Street). The ground floor contains large chimney corner as it were (see plan).

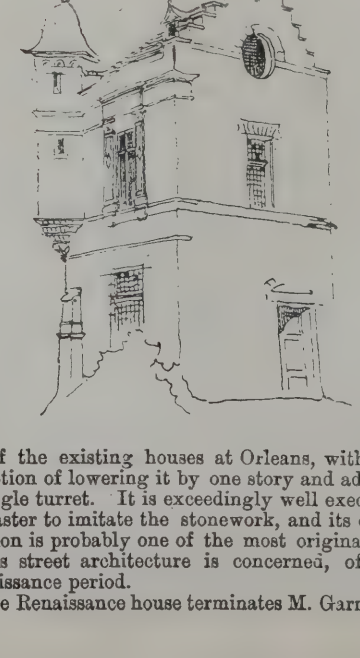
House of the Middle Ages in the time of King Louis —XIII. century (No. 161).—This is a very characteristic front, the lower portion in masonry





containing a pointed arch to the shop front, part of which is left as a door, and the entrance to the house with a flat head. Above this is a projecting half-timbered front two stories deep, solidly constructed with tiled roof.

Projecting towards the river and inclosing the public square is the *Renaissance House* (No. 162) of the time of Francis I. M. Garnier has copied

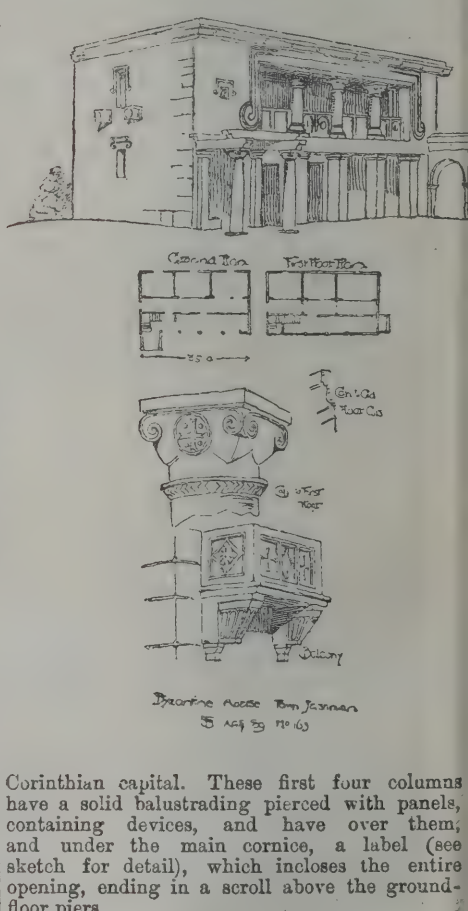


one of the existing houses at Orleans, with the exception of lowering it by one story and adding an angle turret. It is exceedingly well executed in plaster to imitate the stonework, and its composition is probably one of the most original, as far as street architecture is concerned, of the Renaissance period.

The Renaissance house terminates M. Garnier's history consequent on the Aryan Invasion as far as the West is concerned, and the houses which follow are those of the people under the influence of Byzantium.

The Roman civilisation in the East lasted from the 4th to the 15th centuries, and had a character quite its own, and distinct from the West, and this period therefore commences with a Byzantine house of this period, and then specimens of the influences of the Byzantines upon the Slavs and the Russians, and the period of Mussulman or Mohammedan invasions.

The Byzantine House (No. 163.)—The old empire of the West having been shown to be under the influence of the barbarian invasions, the Eastern Empire lasted, with Byzantium as its capital, from the 5th to the 15th century. The house given is of the reign of Justinian (6th century), and is said to be an exact copy as to its plan, elevation, dimensions, and details, of a Byzantine house in Central Syria measured and drawn by M. le Marquis de Vogué. It is entirely in stone and solidly constructed, wood not being found in this part of Syria. It contains two floors, and the front is formed in open arcades, the columns in the ground floor being square, with slight moulding at top (see sketch), and the columns to first floor being short, circular columns, with heavy necking mould, and two different specimens of capitals, the outer ones being rude Ionic, with a circle between the volutes and the central one, a Byzantine modification of the Roman



Corinthian capital. These first four columns have a solid balustrading pierced with panels, containing devices, and have over them, and under the main cornice, a label (see sketch for detail), which incloses the entire opening, ending in a scroll above the ground-floor piers.

The projecting balcony at the side is approached from the first-floor loggia.

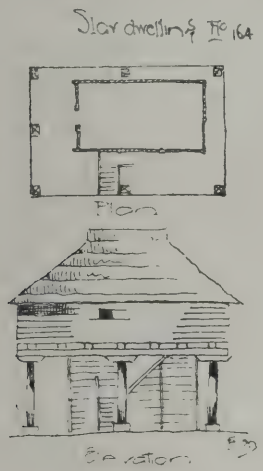
I give a sketch plan, from which the general arrangement may be seen. It will be seen that the staircase is under cover, and leads to the first floor from a sort of porch. The length of the building is divided into three rooms, and these are approached from an internal passage.

The Slavonian Dwelling and the Russian House (No. 164).—These two houses show the Byzantine influence which spread itself over the population of Eastern Europe. These two houses belong to M. Garnier's last group of Aryan habitations, and in many respects resemble one another: the Slavonians here represented by a Servian habitation, a plan of which I give. It is composed entirely in wood, rough squared, resting on a rough stone base. It is surrounded with rough wooden columns, which support the projecting first floor. There is an exterior wooden staircase leading to the first floor. The windows are ex-

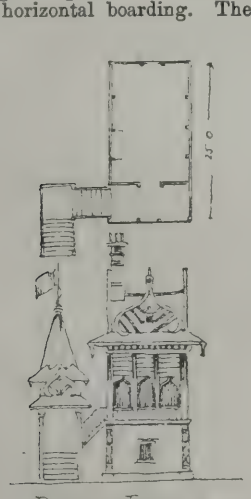


ceedingly small. The woodwork is painted in crude tones of red, yellow, and green.

The Russian House (No. 165) of the 15th century, is also in wood, but the ground floor is composed of rough stone covered with plaster.



This, like the Slav dwelling, has also an exterior staircase, and it is covered with an ogee-shaped roof and wooden flêche above. The staircase leads to the first floor, the space between the upright framing being filled in partly with stained glass, and having an ogee arch at the top. The space above has horizontal boarding. The building is



covered with a horseshoe-shaped roof, following the outline of the gable. It is taken from the neighbourhood of Moscow. There are many points in common between this and the Slav dwelling: both in wood, being built in countries where wood abounded and stone was scarce, and both have an interior staircase, resulting in each case from Eastern manners and customs, which separate the dwelling of the men from the women, the first floor being called the "terem," a Russian word signifying the women's part of the house, and which, in consequence of being on the first floor, came in time to mean the first floor itself.

While the Byzantine Empire increased on the North in Eastern Europe, it was, however, broken up on the South by the invasion of the Arabs in the 7th century, in order to propagate the new religion of Mohammed, and the next two habitations—the Arab house and the Soudan habitation—are of this period.

The Arab House (No. 166) is not the reproduction of a special house, but of a combination of authentic elements produced partly by the climate itself, and partly by religious and social prescriptions. For example, the Mohammedans not being allowed by their religion to represent pictorially living things, "arabesques" were the result, which, in their origin, were nothing more than Arabian letters. The horse-shoe arch is also given in the entrance door.

The wooden trellis projecting windows to the first floor are also the natural result of a religious and social custom which did not permit of the women being seen unveiled, this particular form of window, however, enabling them to see without being seen. The principal entrance leads into an open court, from which the rooms are entered, and in which is the staircase leading to the first floor.

RAISING, MOVING, TRESTLING, SHORING, WIND-BRACING, AND UNDERPINNING BUILDINGS.—XI.

(CONCLUDED.)

By ALEX. BLACK, C.E., Architect.

TRAVERSE MOVING AWAY OF BUILDING TO CLEAR BEAM-BEARINGS IN PARTY-WALL.

IN preparing to move and lift houses built on corner sites, or on sites where the building to be moved or lifted up bodily is confined only on one side by a party-wall, it may be under certain conditions preferable to the methods previously mentioned (p. 736), when beams and joists have bearing in the party-wall, and also when the old party-wall is to be utilised in the lifted structure, to use "traverse" screw-jacks to draw the building away endways from the party-wall, so that the bearing ends of joists and beams therein can be readily cleared therefrom. When the building is raised up to its destined height it can then be traversed back again, and in such a procedure the beams can easily be made to have bearing in the party-wall at their higher position.

With a view of affording certain useful data in connection with the use of traverse screw-jacks for this purpose, the particulars of them are appended in table II.; but it may be here observed that those jacks which are furnished with ratchet-levers for lifting and for traversing would hardly permit of conveniently exercising sufficient man-power for working them under the great weight which a masonry house would most likely impose.

When using traverse jacks, the pier blocking up to the level of the pavement, when required to bring up solid bearing from the ground through basements, cellars, areas, &c., should be made wide enough to support the whole length of the necessary traverse movement of the building away from the party-wall. If a low wall or structure prevents this extension of the pier to a sufficient distance, a separate block pier must be built on the other side of the wall, &c., and a substantial connection of beams be made between them in order to bridge over the obstruction. If there be no area, strong transverse and longitudinal sleepers crossing each other should be laid on the ground so as to impart to the sleepers, piers, &c., sufficient firmness to take the greatest weight of the building coming upon it, so that all unequal settlement may be avoided. Any inequalities in height in levelling from pier to pier, &c., across the obstructing walls, &c., must be made good by solid packing, wedging, dead-shoring, &c., according to circumstances.

Note.—The extra weight of "traverse" jacks over the "lift" jacks as scheduled in tables I. and II. makes them more unwieldy to "fleet" at each run out of the lifting screw, so that "house-raisers" would prefer to use simple lifting bottlejacks, or like Fig. 30, for the raising portion of these operations. Consequently, when the building is lifted up to its proposed height by means of the simple lift bottle jacks, or like Fig. 30, the "traverse" jacks must be re-inserted at the same level where they were originally used in drawing away the building, in order to retraverse the building back again to the line of its original position of proximity to the party-wall, and thus to afford bearing for beams and joists at their higher destined levels.

LIFTING SCREW-JACKS, AMERICAN TYPE.

At p. 325, Fig. 17, shows a mode of adaptin to the use of raising and moving small houses, *en masse*, the common "bottle" screw-jack, which is usually made in this country for general purposes. But when it becomes necessary to build up gradually piers of blocks of wood underneath heavy buildings of masonry which are thereby being lifted up to a considerable height, as presently described, the typical American pattern of lifting jack is much preferable. A good specimen of this description of jack is shown, set in a pair of screw-blocks, all drawn in orthographic projection, by Fig. 30. It consists of the right-handed screw proper *e*, with square thread. It has also a square head at the top end of it, terminating with an egg-end pivot, *b*. In the head are two holes, *a*, passing through it, one above the other in alternate faces, to receive a loose iron lever 2in. in diameter × 6ft. long, by means of which the screw is worked up, as indicated by the arrow-head. A broad-shouldered box, *f d*, contains the nut, or female screw. The shoulder, or square flanges, *f*, of the box, shown in plan in Fig. 34, rests upon a pair of oak screw-blocks, 6in. × 8in. × 3½ft. long, J J (Fig. 30), hollowed out so as to receive the cylinder, *d*, centrally between them. Fig. 33 shows one of these screw-blocks hollowed out at *g*. It will be noted that a part of the front screw-block of the pair is cut away to show the screw *e* and cylinder *d* of the box when set in the blocks. A loose square cap (Figs. 31 and 32), which is slightly pyramidal (truncated) in elevation, fits upon the head of the screw. It is furnished with a hollow egg-end hole, corresponding to the pivot, on which it is capable of turning freely. Fig. 31 shows the cap in elevation, held up vertically over the head of the screw ready to be placed upon it before being put underneath the ends of the needles, &c., in house-lifting operations. The average size of screw used for heavy masonry house-lifting is 3in. diameter, with a pitch of thread of ¾in. Their safe lifting capacity ranges from 10 tons upwards. The screw runs out of the nut 14in. under heavy weights, and remains quite steady. This is the clear effective lift of the screw each time the jacks are "fleeted." Two men using a 6ft. iron bar lever can raise 10 tons with one of these jacks. The Figs. 30 to 33 are taken from the particular pattern made specially for the use of Messrs. B. C. Miller and Sons, of Brooklyn, N.Y., who have kindly furnished a sketch of it.

THE BUILDING-UP PIER-BLOCKS.

In the operations of lifting up buildings above their original level, temporary pier supports, which are readily increased or reduced in height gradually, are necessary. These piers must have sufficient stability within themselves to preserve the masonry house safely, and also must

admit as freely as possible of the necessary working and constructional operations between them. It is found in practice that piers constructed of pairs of blocks of oak in courses crossing each other alternately, serve this purpose for all ordinary cases when 3½ft. long, and of a square or rectangular section of from 6 to 8in. These blocks must be cut to exact rectangular uniform section and length, and the aggregate area of the four contact corner surfaces in each course must be sufficient to insure safety against crushing of the fibre of the blocks. In order to economy and compactness, the ends of the blocks are built flush with the sides of alternate courses, as shown at *h h*, *i i*, in the front corner of Fig. 35, which shows five courses of built pier blocking underneath the pair of screw-blocks J J.

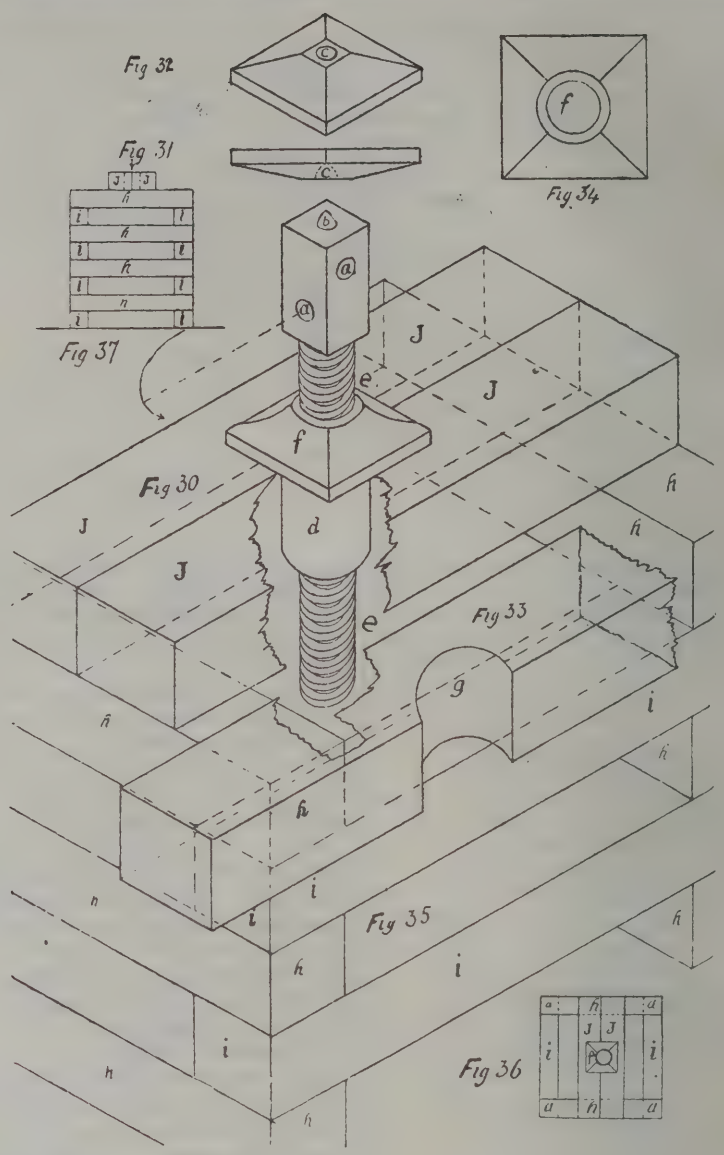
[*Note.*—It may be necessary to explain with regard to the crowding together of the figures, that the addition to Fig. 30 (underneath the pair of "screw-blocks" in which the screw is set) of the upper five courses of a blocking pier which comprises Fig. 35 was an afterthought; hence it will appear clearer by conceiving Fig. 33 (which shows the semicircular hollow for receiving the cylinder *d* of the screw-box) to be removed.]

The key diagrams, Figs. 36 and 37, will afford a clear conception of the approved arrangement of the blocks. The corresponding letters will aid in readily identifying the same pieces in the projection and in the plan (36) and elevation (37). A comparison of Figs. 17 and 35 will show that the latter is not a mere repetition of the former. An inspection of the key plan Fig. 36 shows that only the four end corners *a* of, say, 6in. square of the alternate courses are in contact vertically. The aggregate area of these surfaces make 1sq.ft., resisting the entire compression upon the blocks. A safe load for such temporary structures for average English oak in good condition may be taken at about 400lb. to 500lb. per square inch, or over 20 tons per square foot. This assumes that the entire area of the aggregate of four corner surfaces are equally and uniformly pressed, and likewise pressing upon each other; but a wind or twist, or warping in the block will cause a liability to rocking of the pier, and hence its instability until the torsional resistance of the twisted block is completely overcome by a sufficient weight being in action upon it. Large hard knots occurring within these end contact surfaces would also be a potent cause of irregularity of action. To prevent unequal loading of either of a pair of pier blocks, the screw-blocks J J should be set in the middle of the length of the pier blocks *h h*, Fig. 36. The arrow above Fig. 37 shows the vertical direction of the axis of pressure of the weight of the house upon the needles. Accumulations of inequalities of section in each pair of blocks, if predominating on one side of a pier of, say, over 20ft. high, such as might be required for sub-building a shop with a mezzanine story over it, might impose, by obliquity of action, a serious inequality of stress upon some of the pier blocks. In the usage and incidental knocking about, and weather exposure of blocks, the edges and ends are very liable to serious abrasion and wearing away; hence, for tall block piers, none but perfect blocks should be used.

SCREW-JACKS—ENGLISH.

Amongst the types of lifting screw-jacks made in England, those which might be adaptable for house-lifting purposes when the lift does not exceed a few feet, are known as the "bottle" and "tripod" and the tripod-bottle or skeleton, or "open case." The traverse jacks are similarly distinguished. The usual form of cap, however, is rather contracted, and would seriously injure timber needles under heavy loads unless an iron plate were interposed. The American bell-bottom lifting screw-jack, with its saucer-like cap, is a preferable form for this purpose. The jack sketched in Fig. 17 is a rough outline of this American type, p. 325, Vol. LX.

The following are useful particulars of the common "bottle" screw jacks for lifting and traverse operations as usually manufactured in England for general purposes. The scheduled items are principally furnished by Messrs. Tangyes (Limited) and Messrs. Rownson, Drew, and Co., the former distinguished by a T, and the latter by an R. The others represent corresponding sizes of various makers. They will serve as an approximate guide for similar particulars relating to corresponding sizes of other manufacturers in different provinces, as well also in some degree for those of the special American type of house-raising screws, illustrated in Figs. 17 and 30. The weights are averages.



Tangyes have recently redesigned their tripod and bottle types, giving them a uniform run-out of screw of 12in., and likewise their traverse jacks, giving a uniform traverse of 12in. in the sizes here enumerated. These changes, they state, make them lighter, and the lifting-jacks stronger.

Table I.—Lifting Screw Bottle Jacks.

Diameter of screw in inches.	Pitch of thread in parts of inch.	Clear lift in inches.	Height when screw down in inches.	Weight complete in pounds.	Safe lifting load in tons.	
2½	See note below	17½	30	81	12	"Tripod-bottle" T
2¾	"	12	23	69	15	"Bottle" "
2¾	"	12	24	83	18	" "
3	"	12	24	102	20	" "
2½	1	16	30	84	15	" R
2¾	"	16	30	112	18	" "
3	"	16	30	140	20	" "
2½	½	18	30	70	12	Various makers.
2¾	"	20	33	90	14	
3	¾	22	36	112	16	

Note.—English manufacturers do not publish the pitches of threads of their jack-screws; but for diameters between 2in. and 3in. the threads may range from ½in. to 1in. pitches. Some makers have ½in. pitch for screws between 2in. and 3in. diameter. But for house-lifting purposes the pitch of the screws should be previously known, as all lifting screws used in the same operation should be of exactly the same pitch to avoid overstraining any part of the building (see p. 393).

The hire of single lifting screw-jacks ranges from 2s. to 3s. per day. The hire of 50 to 100 jacks per month, say, about 15s.

In America the screws are hired at 50 cents to 75 cents per day, according to number hired and extent of time required for.

Table II.—Traverse Screw Bottle Jacks.

Diameter of screw in inches.	Pitch of thread in parts of inch.	Clear lift in inches.	Height when screw down in inches.	Weight complete in pounds.	Safe lifting load in tons.	Length of traverse.	—
2½	See note above.	9	22	113	15	12	T.
2¾	"	9	22	138	18	12	"
3	"	9	23	162	20	12	"
2½	"	16	24	136	15	12	R.
2¾	"	16	26	196	18	14	"
3	"	16	27	273	20	18	"
2½	½	17	26	112	15	16	Various makers.
2¾	½	17	33	140	18	19	
3	½	17	34	168	20	22	

The hire of traverse screw-jacks per month, of 50 to 100, say about 20s.

HYDRAULIC JACKS.

Hydraulic jacks have not been much used in house-lifting or moving operations. At the Great Yarmouth Town Hall lifting operations a hydraulic jack was only used at a few awkward places (p. 490). They might be employed with advantage under very massive houses where more

than 10 tons would be imposed upon each jack, as up to 50 or 60 tons can be raised by hydraulic jacks by one man. Their most advantageous employment would be in places where hydraulic power is readily accessible, so that a systematic service of hydraulic pressure could be arranged to effect a uniform lift all round the building simultaneously. The prices and weights of hydraulic jacks are about ⅛ to ½ more than those of the bottle screw-jack of same lifting power.

TRESTLEWORK SHORING.

In cases where the building has been lifted up high enough above its original site to introduce more than one low story above the ground level, and where there is extensive excavation to be made, and enlarged or altered foundations to be constructed, and extensive masonry of sub-stories to be built, it may be preferable to erect a strong system of trestlework underneath, and supporting the main walls of the building at wide intervals, instead of substituting simple dead shores for the blocking piers singly, which only admits of the work being done piecemeal, or in small patches at a time. The blocking piers, upon which the building has been lifted up, would thus be all removed together, after the trestling has been erected, so that extensive excavation and substructural work could be executed with desirable progress upon a more extensive scale of operations. The arrangement of the pieces of which a system of trestlework consists is usually symmetrical on both sides of the wall. Its essential parts should consist of longitudinal balk sleepers laid on the ground, or, if necessary, upon transverse heavy planking first laid upon the ground, both along the inside and outside of the main walls of the building, and to be sufficiently apart to be clear of the proposed excavation. Across these sleepers, at convenient intervals, should be laid heavy transverse sills; these could be doubled in superposition for the centre half or two-thirds of their length in order to reinforce their transverse strength. Upon the double portion of the sills are butted vertical legs or dead shores on both sides of the proposed wall alike. Athwart the tops of the vertical legs are laid tie-beams, taking about three-quarter bearing upon their heads. Upon the ends of the main sills are set up raking legs inclining towards the wall on each side of it, which are notched with a bird-mouth at top under the outer edge (about one-fourth of the width) of the stringer next described. Along the notched tops of the raking legs, and across tie-beams laid on top of the vertical legs, are placed longitudinal stringers or heavy beams, which may be doubled in superposition and breaking joint over legs to take the weight of the superstructural walls carried by the needles. The tie-beams and the vertical and raking legs are braced together near their meeting angle by planks spiked to them. Strong iron dogs securely hold together the superimposed stringers, and both to the head of each pair of raking legs, also to the transverse tie-beams and to the needles. The feet of the vertical and raking legs and the sills and sleepers are in like manner secured together. The vertical and raking legs should be tied together transversely at their top, in addition to the bracing above described. Longitudinal bracing should be introduced between the vertical legs to prevent accidental swaying movement. The distance apart of the transverse sills carrying the supporting legs should be sufficient to afford full facility for the performance of the excavation and building operations involved. Their position should, as far as possible, correspond with those of the fenestral openings in the walls. In all cases the trestlework should be arranged so that all its parts can be readily withdrawn without interfering with any portion of the permanent work, upon the completion of the underpinning of the old walls upon the new masonry. By sufficiently reinforcing the transverse strength of the stringers, the longitudinal distance apart of the legs can be safely increased.

In all temporary structures of this class the student should aim to arrange the pieces of timber so that as little cutting into the sides of timbers, mortising, housing, halving, or other modes of frame-jointing and fitting shall be required as possible, as being wasteful of timber and expensive in workmanship.

SETTING THE SCREWS.

The screws should all be of the same pitch and lift exactly, and should be set under the ends of each needle precisely plumb to avoid eccentricity of action, and about 2ft. outside of the walls. The screws are first adjusted, or "set," all round to the same unvarying tightness of pressure under the building by one careful man, so that all the screws shall thus be equally pressed with the same degree of stress of the load, and thus avoid the chance of any screw taking more than its assigned load, whereby injurious strains may be engendered in some parts of the structure.

PLATFORM FOR WORKING THE SCREWS.

As the building gradually rises up and the height for working the screws from the ground gets inconveniently great, a platform of planks is built on timbers spanning the space between the opposite tiers of block piers; or, when this is too wide, on cantilevers inserted in the block piers. This platform or scaffold is built or moved up each time that a fleeting or run out of the screws is made. The men working the screws being all thus together in sight of each other, can act simultaneously under one leader in the screwing-up of the jacks by which they are thus surrounded.

MODES OF PROPULSION.

These vary with the massiveness of the house, and the distance of its transportation. A three-story brick house, 18ft. by 30ft., of four walls, the front and rear walls being 30ft. to the eave, was moved on timber ways and hardwood rollers, by two horses working a 12ft. capstan bar, and the intervention of block and tackle gearing. For heavy houses, forcing jack-screws are butted against balks solidly bedded in earth banks where available, or against transverse timbers chained to the way-timbers, or against butting blocks fastened by chains, or other means, to the way-timbers, to receive the foot of the screw-jacks, while the head of the screw-jacks press against the ends of the cradle-stringers. Pulling screws and hydraulic pulling-jacks can sometimes be fixed to firm objects ahead. Propulsion by screws is a slow process, and often crab-winches, or capstans, worked by man power, with the intervention of block and tackle gearing, can be substituted. But all such arrangements must depend on the amount of propelling power required, distance, &c.

THOMSON'S ROAD STEAMER AS A PROPELLER.

A substantial "frame" house, 25ft. by 45ft., weighing 30 tons, at Stockton, California, was safely, expeditiously, and economically moved about 100 yards in three-quarters of an hour, BUILDING NEWS, September 8th, 1871, p. 188.

FURTHER LITERATURE ON HOUSE MOVING IN AMERICA.

Penny Magazine, Vol. 6, p. 67, "Frame" Grist Mill, 1837; ditto, Vol. 11, p. 284, Brick house, 1842; letter of Dr. E. Wells, Reading, in *Berkshire Chronicle*, January 23rd, 1869; *Journal* of Franklin Institute, Philadelphia, Vol. 89, p. 89, 1870, Hotel Pelham; ditto, Vol. 100, p. 178, 1875, Brick house; *New Era*, N.Y., Vol. 3, p. 153, 1873.

MOVING A MASONRY HOUSE AT READING WITHOUT DISTURBING THE OCCUPANTS, ETC.

In addition to the instances of removal mentioned, March 20th, p. 393, and April 3rd, p. 490, the following has been traced: — In 1869, January 29th, on the occasion of erecting a new iron lattice bridge at Caversham, across the Thames river, jointly by the Corporation of Reading and the County of Oxford, to replace a very narrow stone structure of considerable historic interest, a brick house with slated roof which was considerably out of repair, and stood upon an islet in the middle of the Thames on the east side of the old bridge, and upon the site of the new and wider structure, was moved to one side about 25ft. The house, which is known as the "Waterman's Cottage," by 35ft. by 25ft. on plan, and three stories high, or 30ft. from ground line to roof plates. The N. and E. walls are 9in. thick, and the S. and W. are 4½ brick panel in timber frame, and composted outside. The house and contents weighed about 180 tons. The contractors for the bridge were doubtful about the safety of its *en masse* removal but Mr. J. Dormer, the clerk of works, and now of the Great Western Railway, undertook the removal for the contractors, and accomplished it safely without accident of any kind in three hours after the preparations were completed. The furniture and four persons of Mr. J. Piper's family, who were living in the house at the time, remained in the third story during removal from start to finish. The cost of preparatory work, use of materials, jacks, &c., and of removal, and of new timber-piled foundations, was £50. The saving effected, as compared with taking down and rebuilding the structure, was £150, besides over a year's time, rent, and incidental expenses. The lower portions of the timber framing were rotten, and were previously replaced by new sills, which rested on parallel lines of three pairs of roller plates, one pair being placed in the middle, and one at each side. Short wrought-iron rollers worked between the plates, the sides of which, in contact with the rollers, being protected by strips of iron. The inner walls and partitions were strutted and stayed to prevent distortion. The removal was effected by means of hydraulic and screw-jacks (partly from *Berkshire Chronicle* of January 30, 1869, and partly furnished by Mr. J. Dormer, of Tilehurst, Reading).

THE MOST RECENT CASE OF HOUSE-LIFTING AND REMOVAL IN ENGLAND.

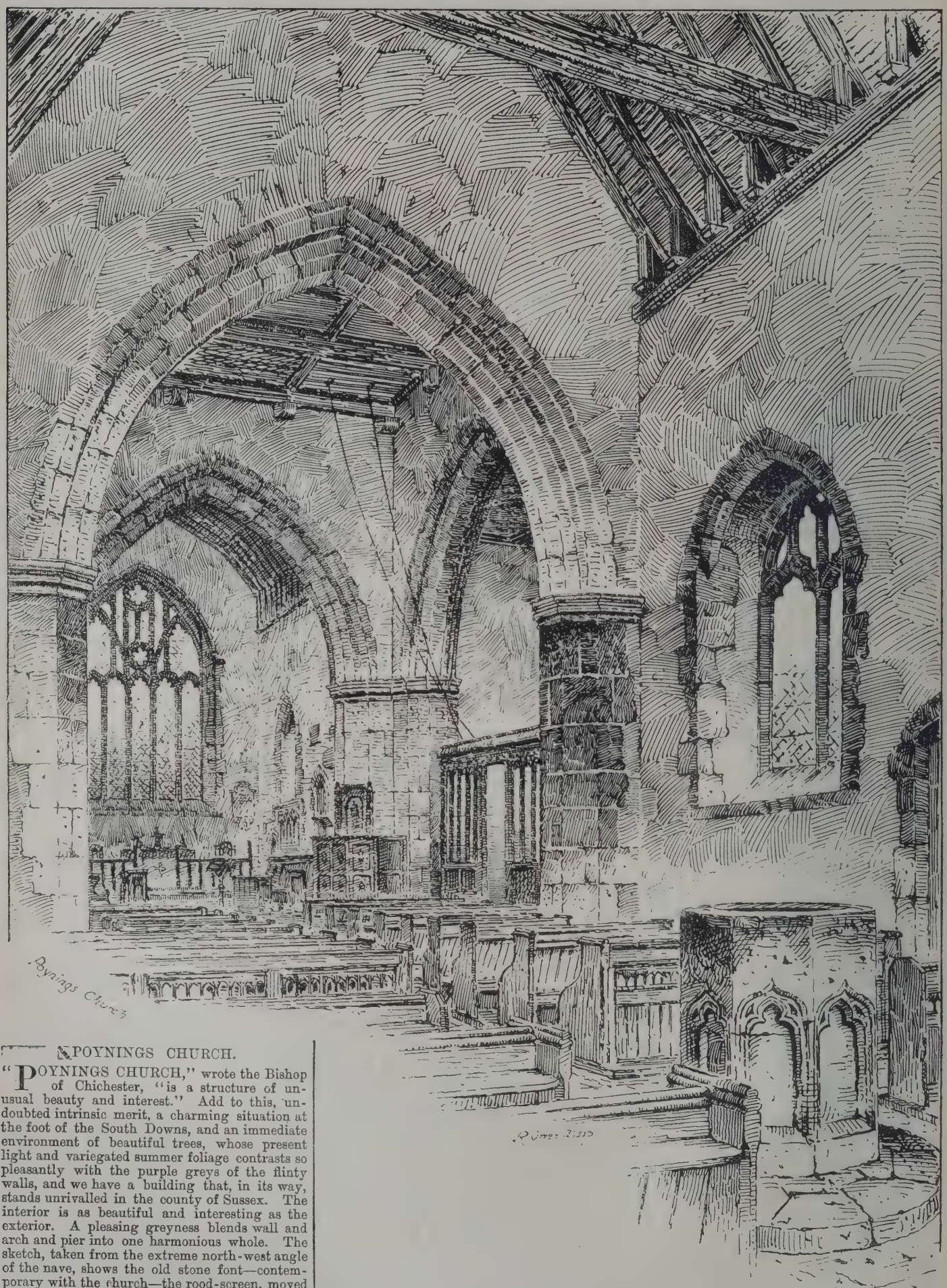
An interesting, and one of the most ancient houses in the United Kingdom, known as "Trinity House," Worcester, which was originally a part of the notable ancient mansion "Trinity Hall," was removed *en masse* a distance of 30ft. S. and 6ft. W. by Messrs. Bromage and Evans, Worcester. The removal was completed on May 8th. The house is 30ft. by 30ft., and two stories high, constructed partly of "brick" nogging. The greater portion of the "brick" being hand-made tiles. Powerful screw-jacks were brought into operation to lift the building (which is computed to weigh over 250 tons) bodily, so as to allow of large balks being put under the whole length, and about a dozen cross timbers inserted between them and the building. Railway metals were placed in position for the structure to slide on. By means of a winch, the chain of which was fastened to the centre of a heavy rail placed crosswise, the building was safely moved on to its new concrete foundations. As indicating its antiquity, the partitions and parts of the north and south walls were made in the hurdle style (wickerwork of wattles, or interwoven twigs, and stakes), and then covered with plaster. The peculiarity of the old building is in having a covered balcony or gallery outside extending along the front elevation, by which the second story was approached, and a peculiar-covered passage under it, leading to a street at the back. It is said that Queen Elizabeth, when visiting Worcester, addressed the citizens from the balcony, and a portrait painted on wood of the good queen adorned the building. The public spirit of Worcester gentlemen has thus saved from demolition a very interesting building, which stood in the way of street widening. It is a worthy example, which might be followed with advantage in many places. The removal cost £40.—(*Lincolnshire Chronicle*, May 15, 1891.)

THE MOST REMOTE HOUSE MOVING IN ENGLAND.

In contrast with the above may be mentioned that a house of John Stow's father in Throgmorton-street was loosened from the ground and removed on rollers to a distance of 22ft. by th order of Thomas Cromwell, afterwards Earl of Essex, as the house stood in the way of enlarging his garden. — Stow's "Survey of London," 1598.*

Under the superintendence of Messrs. C. F. L Horsfall and Son, architects, Halifax, a handsom reredos has been erected in Warley Church, near Halifax, by Messrs. Jones and Willis, of Birmingham and London. The central panel is a spirited carving representing "The Lord's Supper," the grouping being that of the famous fresco by Leonardo da Vinci. The figures are carved in very high relief in oak, of which wood the framework is also built. This consists of an elaborate canopy of seven arches with crocketed gables above in the Early English style. A battlemented mould runs between the gables, the spandrels being filled with carving. The canopies are supported by columns at the end, flanked by buttresses terminating in crocketed pinnacles. The side wings form a framework for the Decalogue, Creed, and Lord's Prayer, which are painted upon the wood, the panels being filled with tracery of a simple character.

* The previous Nos. of this serial have appeared at pp. 89, 190, 256, 325, 392, 490, 588, 632, 735, and 832, Vol. LX.



POYNINGS CHURCH.

"POYNINGS CHURCH," wrote the Bishop of Chichester, "is a structure of unusual beauty and interest." Add to this, undoubted intrinsic merit, a charming situation at the foot of the South Downs, and an immediate environment of beautiful trees, whose present light and variegated summer foliage contrasts so pleasantly with the purple greys of the flinty walls, and we have a building that, in its way, stands unrivalled in the county of Sussex. The interior is as beautiful and interesting as the exterior. A pleasing greyness blends wall and arch and pier into one harmonious whole. The sketch, taken from the extreme north-west angle of the nave, shows the old stone font—contemporary with the church—the rood-screen, moved to the south transept arch, and the fine, dark oak Jacobean pulpit. The plan of the church is modelled on the Greek rather than on the usual Latin Cross. There are no aisles, but the transepts are of the same width as the nave and chancel. Each of the four sides of the crossing has similar bold arches of two orders, plainly chamfered, and carrying a square belfry. The church is in the Perpendicular style, evidently Early, and remarkable for the boldness and "breadth" of its design, the mouldings being large and fulsome. The fine proportion of the arches and the absence of those of a depressed, or four-centred outline, the simplicity and breadth of the composition, and the bold and liberal treatment of the details and mouldings, give a nobility of character to this old building that we do not find in all Perpendicular churches. The rector of Poynings has kindly supplied some notes of interest in connection with the history of his church, taken, for the most part, from a work of his predecessor



NEW PAVILION, SOUTHEND PIER. COVERED BY MESSRS. HOLDEN & CO.

(View looking from the Pier Head.)

the Rev. T. A. Holland. In ancient deeds, Poynings is spelt, and the name still at times pronounced, *Punnings*. In a charter of King Eadgar, A.D., 960, Poynings is written *Puningas*. Mention is made in the reign of King Stephen of one Adam de Ponynges, probably the first of the family who possessed the manor during nearly three centuries. The sixth or seventh in descent from the first Adam de Ponynges, Michael, the third Baron, bequeathed by his will, in 1368, 200 marcs *for building a new church* at Poynings—"poure faire une nouvelle eglise a Ponyngges." The will mentions "Johan de Worle, person de l'Aglise de Teryngg," as executor. Thomas, fourth Baron of Poynings, superintended the rebuilding of the church, together with the above-mentioned John de Worle, of Tarring, who was admitted incumbent in 1368. The work of building the church probably began in 1370, and cost 400 marcs = £4,800. It was erected on the site of a former church, dedicated to the Holy Trinity. Alfriston Church and Tarring Church, in Sussex, both bear a likeness to that at Poynings. Alfriston Church, probably older than Tarring chancel, is considered to have been the general prototype of Poynings. Although the chancel and nave are, together, longer in proportion to the transepts than they are at Poynings, the two buildings have so much in common that it has been suggested that they were designed by the same hand. Poynings Church has been well and carefully restored from time to time, on the last occasion in 1890, by the present rector, Mr. Christian acting as architect. Here and there the church requires further reparation; but a small debt yet remains on the last works, and the parish is extremely poor. Outside help is, therefore, greatly needed, and the rector—the Rev. W. O. Purton—or the churchwardens would gratefully acknowledge any donation to the restoration fund. R. Owen Allsop.

NEW PAVILION, SOUTHEND PIER.

THIS pavilion has just been erected, from designs of Messrs. Brunlees and McKerrow, of 12, Victoria-street, Westminster, by Mr. J. T. Chappell, 149, Lupus-street, Pimlico. It is one of the many of which the covering has been executed by Messrs. Holden and Co., of Wood-street, Westminster. The whole of the roofs, turrets, tower, and other ornamental work has been done with Vieille Montagne zinc, upon their patent unsoldered system.

THE METROPOLITAN WATER SUPPLY.

THE Select Committee on the Metropolis Water Supply Bill have presented their report to the House of Commons. They state that they have proceeded upon the assumption that, in the opinion of Parliament, it is desirable to establish a single public representative water authority for the metropolis. Since the reports were made to this effect by Royal Commissioners in 1869 and 1880, much valuable experience has been gained of the growth of population, and of the undertakings of the water companies and the demands upon them. Parliament also, since 1886, has adopted the policy of enforcing more stringent provisions in case of the issue of any fresh capital. An important inquiry into the whole matter, too, has recently been held by the Corporation of the City of London. The committee, therefore, consider it to be most desirable that the problem should be examined by the London County Council, in the interests of the water consumers of the metropolis. They recommend—1. That powers should be granted to the London County Council to expend such further sums as may be necessary, in order that they may examine thoroughly for themselves the whole position of the metropolitan water supply. 2. That, if they should so resolve, they should have power to promote a Bill or Bills in Parliament for the purpose of constituting themselves the responsible water authority for London, acting either wholly by themselves or partly in conjunction with the Corporation of the City of London on behalf of both bodies. 3. That the London County Council, if constituted the water authority, should be required to purchase, either alone or in conjunction with such of the authorities of the outside areas as may be arranged, the undertakings of the eight water companies (except possibly certain lands of the New River Company) by agreement, or, failing agreement, by arbitration, within a fixed period. 4. That, subject to any such arrangements, the new water authority should take over the duties and obligations which the present water companies now have towards the consumers of water in the districts outside the boundaries of the county of London, but within the limits of supply of the present companies. 5. That in the event of purchase by the new authority, power should be given to that authority, and to the authorities of the outside areas, to negotiate for the purchase by the latter (1) of so much of the works of distribution as is appropriated to the district of such local authority; or (2) possibly of some of the sources of supply. 6. That those local authorities which, like Croydon, Richmond, and Tottenham, are situated within the metropolitan water area, but have their own independent water supply, should, in the event of the purchase of the water companies by the new water authority, be guaranteed in the exercise of their present rights. In the event of the undertakings of the companies not being acquired by purchase, the committee recommend that there should be a Parliamentary inquiry into the statutory powers and obligations of the water companies, and the control now exercised by public departments and and the metropolitan and other authorities over them.

ROYAL ACADEMY ADMISSIONS, JULY, 1891.

Students Upper School.—H. C. Corlette, J. Paxton, J. S Stewart, A. F. Usher, E. W. Wonnacott.

Probationers.—E. R. Barrow, H. Bulman, A. J. Forge, A. Hill, C. O. Law, H. Tarbolton, J. H. Tyars.

CHIPS.

The builder's workshops in Silver-street, Scarborough, belonging to Mr. W. E. Adamson, were destroyed by fire on Thursday night in last week.

Thomas Roe, a joiner in the employ of Messrs. R. Neill and Sons, of Salford, fell, on Friday, from a building which is in course of erection in Moreton-street, Strangeways, and was killed. At the inquest, held on Monday, a verdict of accidental death was returned by the jury.

Lady Charlotte Schreiber, who is well known for her many presents to the South Kensington Museum, has deposited in the British Museum an interesting series of fans. The collection has been placed in the Printroom.

The will of Mr. John Burlison, formerly of 33, Oxney-crescent, Highgate-road, glass painter, who died on May 3rd, has been proved, the value of the personal estate amounting to upwards of £24,000.

The West Cliff hotel and boarding-house, Southend-on-Sea, was opened last week. The hotel contains 90 rooms, and has been built from plans by Mr. M. V. Treleaven, of Acre-lane, Brixton, architect.

The new town hall at Selby was informally opened last week. The building, which has been erected from the designs and under the superintendence of Mr. W. H. Thorpe, of Albion-street, Leeds, is in the Domestic Gothic style. On the ground floor are a committee-room, surveyor's office, and fire-station, whilst on the first floor is a board-room, 26ft. long and 16ft. 6in. wide, as well as clerk's office.

The Prince of Wales unveiled last week in Waterloo-place, Pall-mall, the statue which has been erected by public subscription to the memory of the late Lord Napier of Magdala. The statue, which is of bronze, was commenced by the late Sir Edgar Boehm and completed by Mr. Albert Gilbert, A.R.A., and represents the late Field Marshal on horseback, with a field-glass in his right hand.

The parish church of Nicholaston, near Swansea, is about to be restored. Messrs. Halliday and Anderson, of Cardiff and Llandaff, are the architects.

A new Conservative Club at Guildford was opened on Wednesday week. Mr. A. J. Sturges was the architect, and Messrs. Smith and Sons were the contractors.

The ancient church of Thelwall, near Warrington, is being enlarged. An aisle has been added on the north side, and the foundations of a porch have been laid. The interior of the edifice has been refitted with new sittings, and the floor relaid with wooden blocks. The building will be ready for reopening in about a month.

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Our Illustrations.

R.I.B.A. PUGIN STUDENTSHIP DRAWINGS.

THESE studies by Mr. John Begg, which we reproduce to-day, formed part of the series which he executed during the past year as Pugin Travelling Student. The first shows the tower of Kettering Church from the N.E. A view of the same building from another point of view, and drawn by Mr. J. A. Gotch, F.S.A., will be found in the BUILDING NEWS for Aug. 18, 1882, with many other studies of old work in Northamptonshire, published in connection with our report of the Architectural Association excursion to Kettering and the neighbourhood. A monograph of the church at Kettering was published in 1843 by R. W. Billings, with twenty steel plates, which are still useful for reference. This year Sir Arthur Blomfield, A.R.A., has been restoring part of the church. Mr. Begg's plan, printed with the accompanying view, shows how quaintly the tower on plan sets with regard to the nave, and the anglewise porch on the north is curious, and slants rather unusually. The porch and tower are canted in this way, they say, in order that they may face the approaches to the church from the town. The church is principally "Late" in character, of ordinary type, and the chief interest is comprised in the tower and spire, one of the finest in the county. The date is stated at about 1450. The hexagonal turrets, rising over the too-thin buttresses of the tower, rest on a bold corbel table and cornice, and group well with the springing of the crocketed spire, which has been compared to that of Oundle, a near neighbour in the same county. The Founder's Tower at Magdalen College, Oxford, is the second subject delineated by Mr. Begg's facile pencil. This beautiful part of these famous university buildings is as familiar as the great Magdalen tower, and facing it are the new lodgings erected by Messrs. Bodley and Garner, who have imitated the detail of the old work so closely as to have repeated the open ribbed stone arch which springs from the outer member of the gateway of this tower. The delicately treated oriels, so flat in their projection and yet so effective, have also been cleverly copied, while the carving is perfectly excellent. When the Architectural Association visited Oxford last August, we gave several Oxfordshire sketches, and a lengthy description will be found in the BUILDING NEWS of that date.

ST. MARY'S CHURCH, BRADING, ISLE OF WIGHT.

MR. PERCY G. STONE, F.R.I.B.A., is bringing out an interesting work* illustrative of the architectural remains of the Isle of Wight, the buildings of which deserve a more thorough representation than they have hitherto received from the hands of the architect and the antiquary. We have now before us the first part of the book to which we refer, and to-day among our lithographic sheets will be found one of the plates reproduced by way of a specimen page, thus enabling our readers to judge more nearly the character of the illustrations with which Mr. Stone has enriched his publication. The author, in arranging his subjects, has taken the Medina River as the natural division, subdividing each medine into ecclesiastical and domestic periods, following an alphabetical order, and treating the East and West Medine separately as Parts I. and II. The frontispiece is devoted to a reproduction of Speed's map of "Wight Island," dated 1611, and including detail maps of Southampton and Newport as they existed at that period. A further diagram map of "the Wight" is printed, showing how it was known in the 14th century. An introductory chapter furnishes an admirable account in brief of the history of the island down to the present day. Each building illustrated has a well-written description devoted to it, and its history is traced through the several centuries so far as knowledge will allow, with inventories, inscriptions, and indexes of use for reference. Arreton Church, with its massive western tower and pretty nave, and chancel arcades, occupies the first few plates; then the chancel of Binstead, dedicated to the Holy Cross, is shown, followed by St. Boniface Church at Bonchurch; Brading Church, the subject which we have selected for representation, comes next. According to tradition, it is the most ancient foundation in the island, having been established by Wilfrid, Archbishop of York, under a grant from his convert, Ceadwalla, King of Wessex, the conqueror of the "Wyght" in 686. In all probability the church was founded and endowed by the Azor or De Insula family, about the middle of the 12th century, and one of the earliest rectors was John de Marisco, one of the De Insulas, who held the living some time before 1247. Their descendants, the Lisles and De Aulas, held the patronage till it passed into the hands of the Prior and Convent of Wenlock, in Shropshire. The building itself consists of a nave of five bays, with north and south aisles, a chancel with north and south chapels, and a tower at the west end surmounted by a broached spire with a decided entasis on its outer face. The nave is the oldest part of the church, dating from the close of the 12th century. The lancet window at the end of the north aisle is the only remaining evidence of the aisles erected in the 13th century. The chancel is described by Mr. Stone as being of this period, and of the same date as the tower; but the drawings hardly illustrate any of the parts of the fabric which indicate this fact. The tower is unusual, inasmuch as it stands on four piers, inclosing an open porch. In the Oglander Chapel and the De Aula Chapel there are some important monuments, notably that with the effigy of Sir William Oglander, and the incised slab of Purbeck stone standing in the sacrarium on the south side of the altar. "A fayre stone, with ye pourtraiture of a sowldier on it." Under a rich architectural canopy lies the full-length figure of the "sowldier," supported on two dogs, and his hands extended as if in prayer. The Latin inscription tells the reader that "Here lies the noble John Cherowin, Esquire, during his life Constable of Porchester Castle, who died October 31st, 1441. May his soul rest in peace; Amen." The matrices for the hands, the helmet, and sword-hilt are now blank and empty. They were presumably filled with metal or mastic. In the belfry are eight bells with inscriptions. The building was re-seated and restored in 1865. The small view, which we have reduced from one of Mr. Stone's single plates, and incorporated with our illustration, shows the church and old town hall from the south-west. The tombs which we have mentioned are all fully illustrated in the book. Among the other plates in this folio are views and drawings of Godshill Church, with its tombs and furniture; St. Helen's Tower; St. Lawrance-under-Wath; New Church; Niton; Quarr Abbey, which is fully illustrated and learnedly described; Shanklin Church; Whippingham Church; Whitwell, Wootton, and Yaverland Churches. The book is excellently printed, and the photo-lithographic plates are by Mr. James Akerman, which is an evidence of their crispness and sharpness of line. The other parts will, we understand, include the manor-houses and historical domestic work of the Island.

* The Architectural Antiquities of the Isle of Wight from the XIth to the XVIIth Centuries. Collected and drawn by PERCY G. STONE, F.R.I.B.A. London: 16, Great Marlborough-street, W.

TWO CHIMNEYPIECES.

WE are enabled this week to reproduce two minor examples of the work of the late Mr. W. Eden Nesfield, whose premature death deprived the profession of one of their most distinguished colleagues. The two chimneypieces which we illustrate were executed for Cloverley Hall, Shropshire,* a large mansion built for the late Mr. John Pemberton Heywood, of which Mr. Nesfield was the architect. The upper chimneypiece on the page is in the library, and is executed in russet marble and wainscot oak. The lower one is in the entrance hall. The sculptured panels in the frieze contain illustrations of some of Æsop's Fables. The material is Portland stone. These, with others in the principal rooms, together with all the sculpture and carving on the mansion, were carried out by Mr. James Forsyth, sculptor, of Finchley-road, under Mr. Nesfield's direction.

SCULPTURE AT THE ROYAL ACADEMY.

IN continuance of our series of sculpture exhibits from the present Exhibition of the Royal Academy, we give to-day another double-page plate. The first subject is a refined and elegant statuette and fountain, shown in the Lecture Theatre by Mr. T. Nelson MacLean, entitled "La Source," in pure white marble. The central group is from the masterly chisel of Mr. Henry A. Pegram, and with a dignified picturesqueness represents the certainty of death. The title is "Sibylla Fatidica." Mr. T. Brock, R.A., in a lighter mood and with graceful fancy, gives us a life-size marble statue, emblematic of "Song." The fair maid, in an easy pose, holds a scroll ribbon, and with a light heart, seems to render her melody.

HOUSE AT LARBERT, N.B.

LARBERT is an old Scottish village and parish, once traversed by the Roman-road from Falkirk to Stirling, of which traces are still to be seen. It is twenty miles from Glasgow, with which it is connected by thirty trains daily each way, and is growing into a favourite residential neighbourhood. "Woodcroft," erected for Mr. George Sherriff, is finely situated on an estate recently opened for feuing, and commands beautiful views of the Ochils and the Carse of Forth. Larbert is not far from one of the principal quarry districts of Scotland, and the house is built of the fine local freestone, and covered with dark red roofing tiles from an Alloa manufacturer. The timber framework which enters into its construction is of teakwood. The drawings from which our illustration is taken are shown in the current Royal Academy Exhibition, the architect being Mr. T. L. Watson, F.R.I.B.A.

THE LATE COL. HAMBRO'S FURNITURE.

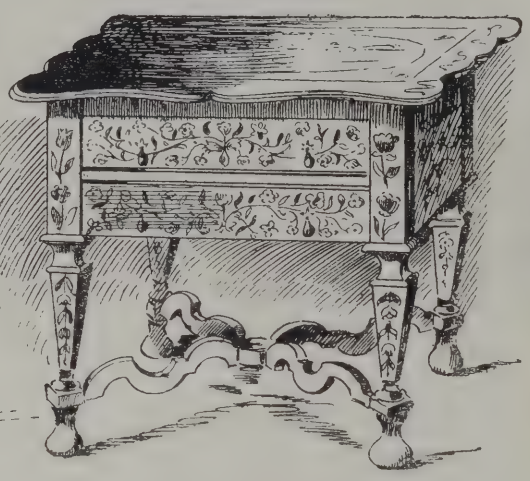
THE Table at the head of this sheet of sketches is oblong, with moulded and shaped top; the surface of which, like the front and sides, is richly inlaid with marqueterie. Two drawers occupy the whole width between the legs, the latter being strengthened with curious stretcher. The Cot is an interesting piece depending for its effect on its simplicity of design and nice workmanship: the head, foot, and sides are inlaid with panels of square parqueterie, with narrow border; the shaped head is fitted with hinged tester. The Boudoir is a dainty piece of furniture of satin-wood with inlaid borders, suitable for keeping knick-knacks in. The Sheraton Corner Cabinet is made in mahogany inlaid with satin and other woods, and containing cupboard with folding doors, three drawers, and delicately shaped shelf below, and three tiers of shelves above. The satin-wood Writing-table is one of those ingenious devices of the cabinet maker, which contain more than at first meets the eye. Thus the back of this piece is ornamented with a mirror below the desk, but which is capable of being raised for toilet and other purposes; also, by the pressure of a spring, the sides are found to conceal trays for containing writing materials. The table is inlaid with festoons of foliage, &c., has a leather top, long drawer, and shelf cut away for legs of user.

Ripley Church, Surrey, was reopened last week after renovation, carried out by Mr. J. Puller, builder, of that village.

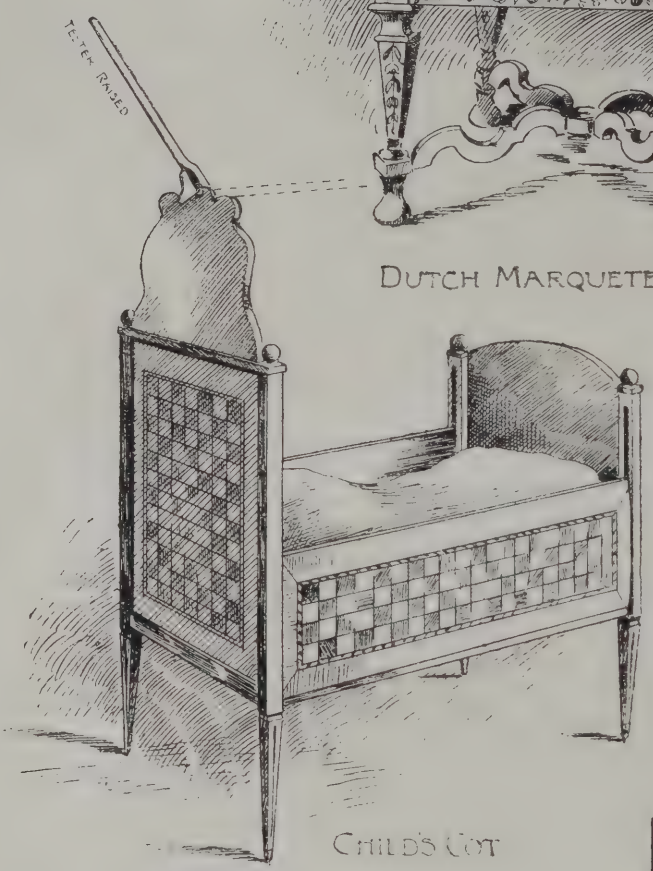
* A view of Cloverley Hall was published in the BUILDING NEWS, June 3, 1881.

SKETCHES AT MESSRS CHRISTIE'S SALE ROOMS

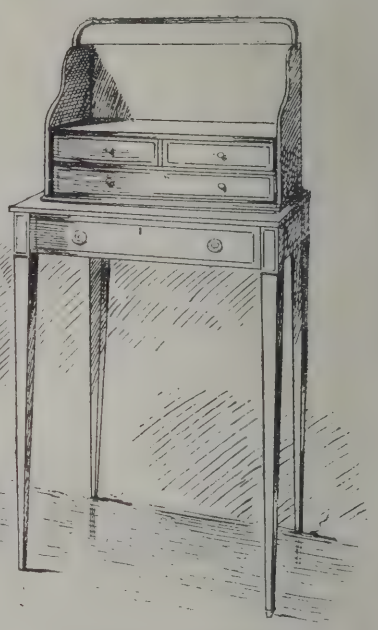
FURNITURE FROM THE COLLECTION OF THE LATE COL. HAMBRO, M.P.



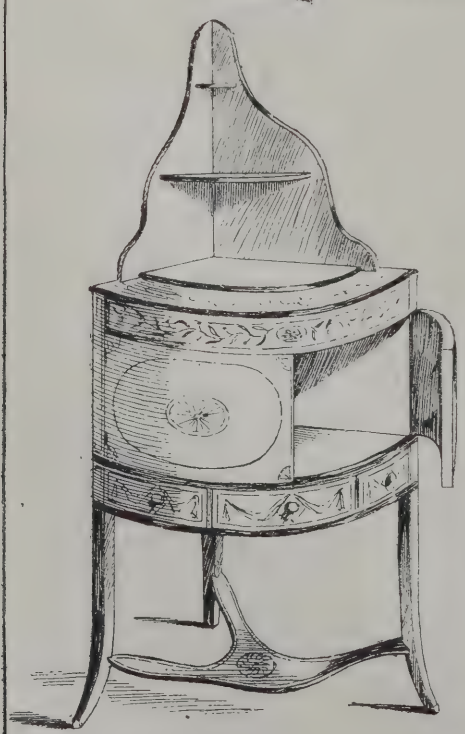
DUTCH MARQUETERIE TABLE



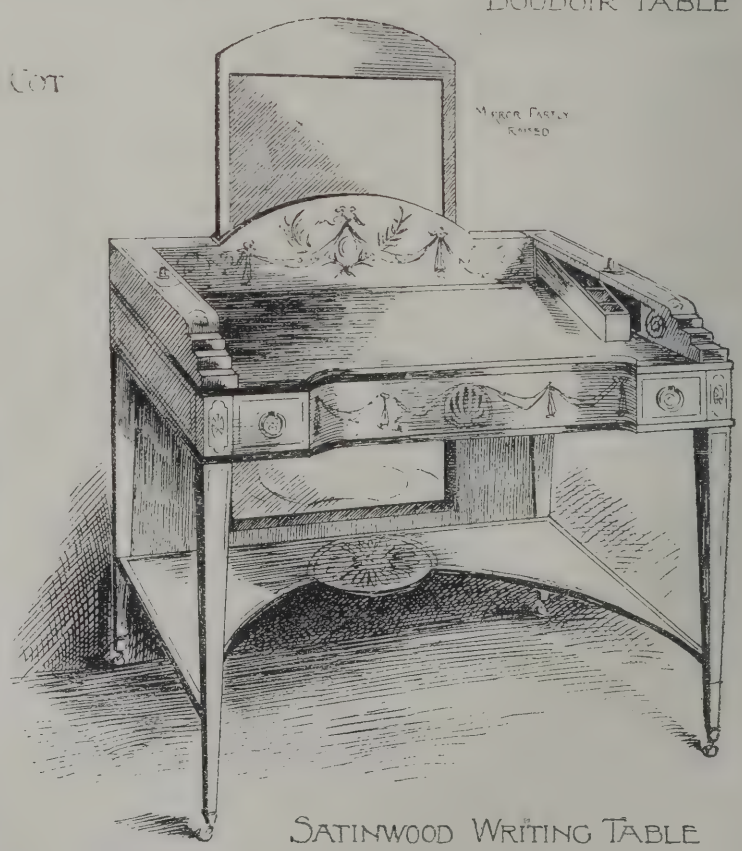
CHILD'S COT



BOUDOIR TABLE



SHERATON CORNER CABINET.



SATINWOOD WRITING TABLE

E. Chancellor del.



THE HIGHGATE DAIRY.

THIS old-established dairy, dating from 1707, is situated in South-grove, Highgate, on the top of the hill, and forms part of the Hawkins Estate. It has been recently rebuilt for Mr. Chas. Davies, the leaseholder, from the design of Mr. Ernest H. Abbott, of the firm of Bray, Young, and Co., of 6, Warwick-court, architects and surveyors. The drawing shows the front elevation facing South Grove. The buildings comprise dairy, can-room, cowsheds for 30 cows, stables for four horses, offices, &c., in the rear, the whole of which have been constructed upon the most modern sanitary system. The shop at the corner, lined throughout with tiles, is for the sale of dairy produce. The dwelling-house contains two sitting and six bedrooms, bath-room, kitchen, offices, &c. The two residences adjoining each contain two sitting and four bedrooms, bath-room, kitchen, offices, &c. The elevation of the whole block is faced with pressed red Leicester bricks, moulded cornices, stringcourses, &c., and the gables are rough-cast. The roof is covered with green Welsh slates. The works have been carried out at a cost of about £3,000, by Messrs. Scharien and Co., of Chelsea.

MUSIC-HALL CONSTRUCTION.

THE New York Music Hall, plans and particulars of which are published in the *Engineering Record*, is an important structure of its class, under the direction of the Music Hall Company of New York, situated at the corner of South-avenue and Fifty-seven-street. Brick and terracotta have been mainly used, the latter for the decorative features. A vestibule 70ft. long and 25ft. high, vaulted nearly the whole length of one front, is at once spacious and imposing, leading from which are five main doorways into the building. The hall accommodates 3,000 seated, with standing room for 1,000 more. A corridor surrounds the building, and has nine exits. Above the parquet, which holds 1,000, are two tiers of boxes, the dress-circle, and balcony. These tiers do not all stop at the proscenium, as usually seen, but successively terminate at points in the side walls shorter and shorter, the upper gallery terminating the farthest back from the proscenium, so that the fine ceiling can be fully displayed. The heating and ventilation, which are fully described in our contemporary, are on the plenum-vacuum system, both blowers and exhausters being employed. Fresh air is admitted through perforations in or near the ceilings, passing downwards through the hall and rooms, and made to escape through exhaust registers near the floor and in the risers. Ten million cubic feet of air per minute are admitted, being at the rate of a complete change of air six times per hour. The area of inlets and outlets amounts to 2,000sq.ft., thus bringing the velocity of air to about 1ft. per second, avoiding draughts. The details of the system are fully described and illustrated in the *Record* to which we refer. One of the chief features of the structure is the plan of stage, which is parabolic, or arranged on the principle most favourable for the propagation of sound. The section of hall is also designed on the same principle—that is, like a wind instrument. Over the orchestra or stage the ceiling is low, and gradually expands to the proscenium arch. Another similar ceiling, though higher and larger, is in front of this, and the auditorium is still higher, and forms a vault, so that the sound is reinforced at its commencement by the confined walls and low ceiling over the stage, gradually expanding as it vibrates outwards.

ARCHITECTURAL & ARCHÆOLOGICAL SOCIETIES.

Glasgow Architectural Association.—The monthly meeting was held on Tuesday week—the president, Mr. William J. Anderson, in the chair—when a paper on "English Renaissance" was read by Mr. John White. The Revived Classic style that had its birth in Italy made, he said, its appearance in England towards the end of the 16th century. First seen in tombs at Westminster and elsewhere, it was before long employed in the princely mansions that the affluence of the period called forth—such as Longleat and Wollaton. English Renaissance is, however, seen at its best in the more modest country houses, the tombs and monuments to be met with in every old church, and the county court houses. A discussion followed the reading of the paper, opened by Mr. John Arthur.

Leicester Master Builders' Association.—The first annual dinner of this association was held on Friday, when prominence was given in many speeches to the new departures in the relations of the corporation, and especially of the borough surveyor's department, to the trade. Mr. E. G. Mawbey, who was one of the guests, referred, in his speech, to the fact that he had himself commenced his career in the establishment of a Leicester builder, and announced that his department had decided to advance the wages of its men to the full standard adopted by the Association.

The Royal Archæological Institute.—The annual meetings of this Institute will take place at Edinburgh in the week between Tuesday, the 11th, and Tuesday, the 18th of August. The president of the meeting will be Sir Herbert Maxwell, M.P. Mr. John Evans, president of the Society of Antiquaries, will preside over the antiquarian section; the Bishop of Carlisle over the architectural section; and Dr. T. Hodgkin over the historical section. The sectional evening meetings are to be held at the National Portrait Gallery. Amongst the places to be visited during the week are the Royal Palace of Holyrood, the Castle of Edinburgh, Stirling Castle, Dunblane Cathedral, Linlithgow Palace, St. Andrew's, Dunfermline, Rosslyn Abbey and Castle, Borthwick Tower, Crichton, and Hawthornden; a day will be devoted to the caves of Fife, and another to the Roman wall near Glasgow. On the last day a visit will be paid to the new Forth Bridge.

Waterloo-road Chapel, which has been closed for renovation, was reopened on Sunday last. The building, which was sorely in need of it, has been very successfully ventilated on Messrs. R. Boyle and Son's system. The works were executed by Mr. Vanstone, of White Hart-street, Strand.

An application was made on Wednesday in last week to Mr. Registrar Giffard, in the case of W. H. and F. Croaker, builders and contractors, of Great Dover-street, for the approval of composition resolutions accepted by the creditors. The liabilities returned were at £52,694, of which £13,998 will probably rank, and by the proposed scheme the debtors agree to pay a composition of 10s. in the pound by four equal instalments, security being provided. The Official Receiver reported that the proposal was reasonable and calculated to benefit the creditors. Mr. Registrar Giffard granted the application and rescinded the receiving order.

WAYSIDE NOTES.

HANOVER CHAPEL is doomed to destruction, if a majority of sixteen in favour of a second reading of the Bill for its demolition can at all be taken as foreshadowing the final result of the introduction of this measure into Parliament. We shall not break our hearts over the matter. The chapel has a pleasing façade to Regent-street, and is of some little interest as being one of the few buildings creditable to the Classical mania which, with all its minute copyism, generally failed to produce anything but crude caricatures of the architecture of the ancients. In the Hanover Chapel portico, we have, if not all the refinement of Grecian architecture, yet something worth looking at, waiting to be discovered beneath much dirt and deposits of London soot. Nowhere in England shall we find better executed specimens of the Asiatic variety of the Ionic base—a piquant feature of Classical architecture hardly appreciated at its true worth by modern architects, unless, indeed, it be that while admiring its noble proportions *per se* and admirable effect *in situ*, they perforce neglect to imitate it on account of the multiplicity of its mouldings, and the consequent running up the item of "circular moulded work" in the bill of the matter-of-fact quantity surveyor.

But what cares Parliament for refined architecture, let alone Asiatic or other bases? Well, in the case of the Hanover Chapel, perhaps something more than usual. The figures on the division for or against the second reading of the Bill were—for the second reading, 107; against, 91; so that had a two-thirds majority been required—as would not seldom be an advantage in Parliament—the Bill would have been thrown out as it deserved to be. The above figures are unusually encouraging, as they show that large numbers appreciate the chapel, and fail to see the case made out for the removal of the building. In fact, there is absolutely no case. A certain number of persons would find it to their benefit to have the room rather than the company of the chapel. If they said so plainly, it would be more honest. To say that the chapel is an obstruction to traffic in Regent-street is a subterfuge, and if the arguments advanced as to the small attendance at worship in the building are to hold good, then about two-thirds of the places of worship in more central parts of London may as well be pulled down to-morrow.

The competitive designs for the completion of the South Kensington Museum will in all probability be open to public inspection in the course of a week or so. On Monday it was stated that the plans had been forwarded to Mr. Waterhouse, the assessor, who would complete his examination this week. Next week it is expected that the committee will make a selection of the designs, so that it should not be long before the official business will be completed, and the plans exhibited. South Kensington has been named as the probable place for the public exhibition. It would certainly be the most suitable site for the display of the drawings, which should prove of particular interest to the profession.

According to the Census returns, the inhabited houses of England and Wales number 5,452,802—an increase of 621,283 upon the numbers returned in 1881. The uninhabited houses, and houses in course of construction, on the other hand, have declined, there being 380,117 returned of the former, and 38,407 of the latter. In 1881 the numbers were respectively 386,672 and 46,414. The returns show the average number of occupants of each inhabited house to be 5·32, against 5·38 in 1881, and 5·33 in 1871. We chiefly learn from these statistics that there were considerably more houses in course of construction in 1881 than at the present time, and that the population has a rather larger proportion of homes than at the last census-taking. Some of the facts brought to light by the present returns are a little curious. On first thoughts, for instance, one would not allow that the population of Croydon was 102,697, while Brighton was only 115,402. This is really astonishing. Presuming West Brighton or Hove to be included in the Brighton returns, then it seems something more than remarkable that the numbers should only exceed those of Croydon by some thirteen thousand persons, even if Croydon includes Waddon and other outlying places. Norwich has got into the hundred thousand stage, the exact figures being 100,964. This East-Anglian city, always flourishing, is going ahead yet. In 1881 the census returns showed only 87,841. Liverpool has gone back—it is the only instance in sixty-two towns of over fifty thousand inhabitants where decrease is evidenced—517,951 persons as against 552,508 in 1881. Liverpool, however, yet ranks second only to London. Manchester is returned at 505,343; Birmingham, 429,171; Leeds, 367,506; Sheffield, 324,243; and then we come to the West of England city, Bristol, with 221,665 inhabitants. The last return of Bristol appears to have been 206,874. It is evidently a flourishing place. Bradford follows with 216,361, Nottingham 211,984, and after West Ham, strangely returned by itself at 204,902, we drop below the two-hundred thousand. It may surprise many to know that Kingston-upon-Hull, with 199,998 inhabitants, is ahead of Newcastle-upon-Tyne, 186,345. Salford comes between the two latter towns, and has a population of 198,136. 505,343 + 198,136 = 703,479 is the population of Manchester and Salford, forming together the largest congregation of people in England next to the colossal 4,211,056 of London, which forms the nucleus of the 29,001,018 souls, all told, in England and Wales.

If Liverpool has declined during the past ten years, what will it do in the next decade, if the ship canal answers the expectations of its promoters? It is difficult to get trade away from old grooves; but doubtless much cotton will go through to Manchester direct, and not be handled in Liverpool. At the canal works, by the bye, they have had some trouble in regard to the portion of the work to which I last week alluded. Early on Sunday morning last, an embankment at Ellesmere Port gave way, and, up to the time of writing, no commencement had been made with the reparation—in a permanent manner — of the breach made by the tidal waters of the Mersey. The embankment that was destroyed was constructed hurriedly, but it is said to have appeared very substantial, and to have contained some ten million tons of timber and stone, &c. On Monday a second temporary embankment was constructed, only, however, to give way as before. Now the engineers have found that "the longest way round is the shortest way home," and resolved to do the work thoroughly by the gradual erection of a dam of stronger material. As a consequence of this unfortunate accident, the opening of the Eastham section of the Canal has been delayed, and the company has been put to some expense by the interruption caused to the Shropshire Union Canal traffic. As the Ship Canal Company under their Act are liable for a £100 fine every tide the Union Canal traffic is interrupted by the Ship Canal works, one cannot blame the engineers for their haste to construct the embankment; but they have doubtless had cause to reflect since the washing away of the two plum-pudding-like embankments, that principles of dam construction which answer well enough with children's spades on the sea-sands, are not successful in stern reality.

The recommendations of Sir Matthew White Ridley and his colleagues with regard to the water-supply of London, are not such as will meet the views of all who have considered this question. It is suggested that the County Council be made the central authority, in conjunction with a committee appointed by the Corporation of the City of London. The County Council, as we know, would be only too glad to get the water supply into their hands. There is a spice of humour about the recommendation of Sir Matthew's that the County Council should be empowered to hold an inquiry as to whether it (the Council) should or should not become the water authority! If there is any doubt as to what a hungry dog would do if it had to decide whether or no it should have a bone, then there is also doubt as to the result of any inquiry by the County Council as to who should deal with the Metropolitan water supply. It still seems to me that the Council has duties enough to perform at the present time without taking on its shoulders the water supply, which would be best left to special commissioners or a new water trust; and I should say this was the more certain if the Council are going to take over the tramways of London, as there is some talk of their doing. One thing appears to me as very evident in this question of the water supply of London, and that is that nothing has yet been suggested that is a genuine, striking improvement on old ways and means, and that until such is forthcoming the water companies had best be left to their businesses as heretofore.

I think corporations should treat their workmen to a holiday, or let them pay for it themselves. They certainly ought not to allow their officials to send out cadging appeals, much as some printers and newspaper offices do to their customers. It is all nonsense for *Truth* to call such letters as that here given "little better than an attempt to blackmail"; but they are decidedly ill-advised:—

DEAR SIRS,—The workmen in the employ of the Southampton Corporation propose holding their annual outing on July 23, and have requested me to ask you if you would be kind enough to give them a subscription in aid of the same.

I may add that the greater portion of the expenses are borne by the officials and tradesmen of the town.—I am, dear sirs, yours obediently, A. D. GREATOREX, Assistant Borough Surveyor.

Mr. Greatorex is probably, at cost and trouble to himself, doing his best to make the men's outing a happy one; but such appeals ought not to be sent to firms with which the corporation does business. GOTH.

PRICES.—X.*

[It will have to be borne in mind that the prices given do not include any provision for an increase in the cost of labour, should the men now on strike obtain the 10d. per hour; and contracts taken pending the strike should be entered into with caution, and ought to have a clause allowing an increase if the 10d. is paid, though it scarcely seems probable that it will be.]

MASON.

YORK STONE: PARKSPRING.

		£	s.	d.
In blocks at London depot	per foot cube	0	3	2
Ditto including waste and cartage within 4 miles of depot	ditto	0	4	0
Ditto ditto including hoisting and setting.....	ditto	0	4	9
Add the same extras as to Howley Park.				
Half sawing	per foot super	0	0	4
Plain work to beds and joints ...	ditto	0	1	0
Ditto rubbed faces	ditto	0	1	3
Ditto ditto circular	ditto	0	1	7
Sunk work.....	ditto	0	1	6
Ditto rubbed	ditto	0	1	8
Ditto ditto circular.....	ditto	0	1	10
Ditto ditto ditto	ditto	0	2	2
Moulded work	per foot super	0	2	2
Ditto rubbed.....	ditto	0	2	5
Ditto ditto short lengths	ditto	0	2	8
Ditto stopped in ditto.....	ditto	0	2	11
Ditto ditto circular	ditto	0	2	8
Ditto ditto ditto rubbed.....	ditto	0	2	11
Ditto ditto ditto short lengths	ditto	0	3	2
Ditto ditto ditto ditto stopped.	ditto	0	3	5
Tooled stroke to face work	ditto	0	1	1
Ditto sunk.....	ditto	0	1	4
Ditto circular	ditto	0	1	7
Ditto sunk ditto	ditto	0	1	10
Jointed edge to 3in. stone	per foot run	0	0	3
Ditto 4in. ditto	ditto	0	0	3½
Ditto 5in. ditto	ditto	0	0	4½
Ditto 6in. ditto	ditto	0	0	6
Joggle joints to 3in. and cement	ditto	0	0	9
Ditto 4in. ditto	ditto	0	0	10
Ditto 5in. ditto	ditto	0	0	11
Ditto 6in. ditto	ditto	0	1	0
Ditto head and she 3in. ditto	ditto	0	1	0
Ditto 4in. ditto	ditto	0	1	1
Ditto 5in. ditto	ditto	0	1	2
Ditto 6in. ditto	ditto	0	1	3
If run with lead add for each inch in thickness	ditto	0	0	1
Plain ends to steps.....	each	0	0	6
Moulded ditto 6in.....	ditto	0	1	2
Ditto ditto 8in.	ditto	0	1	5
Plain ends to window sills	ditto	0	0	4
Stops to weathering	ditto	0	0	9
Rounded corners to steps	ditto	0	0	9
Ditto to moulded ditto	ditto	0	1	4
Ditto semi ditto	ditto	0	2	2
Ditto to ditto moulded	ditto	0	3	9
Ditto to sinks	ditto	0	0	9
Mortises for balusters	ditto	0	0	3
Add for lead	ditto	0	0	3
Mortises for newels	ditto	0	0	4
Add for lead	ditto	0	0	6
Iron dowels and mortises.....	ditto	0	0	6
Coping cramps, including mortises and cement	ditto	0	1	0
Holes for pipes in sink.....	ditto	0	0	10
Rebated holes for coal plates	ditto	0	2	6
Notchings in hearths.....	ditto	0	0	6
Ditto double.....	ditto	0	0	9
Mortises for gate hinges	ditto	0	0	6
Ditto including lead	ditto	0	1	0
Large ditto	ditto	0	0	10
Ditto including lead	ditto	0	1	6
Landings 3in. thick tooled one side, hoisted and set	per foot super	0	1	8
Ditto 4in. ditto	ditto	0	2	2
Ditto 5in. ditto	ditto	0	2	8
Ditto 6in. ditto	ditto	0	3	3
Ditto 7in. ditto	ditto	0	3	9
Add for tooling one side.....	ditto	0	0	2
Add for rubbing each side.....	ditto	0	0	2

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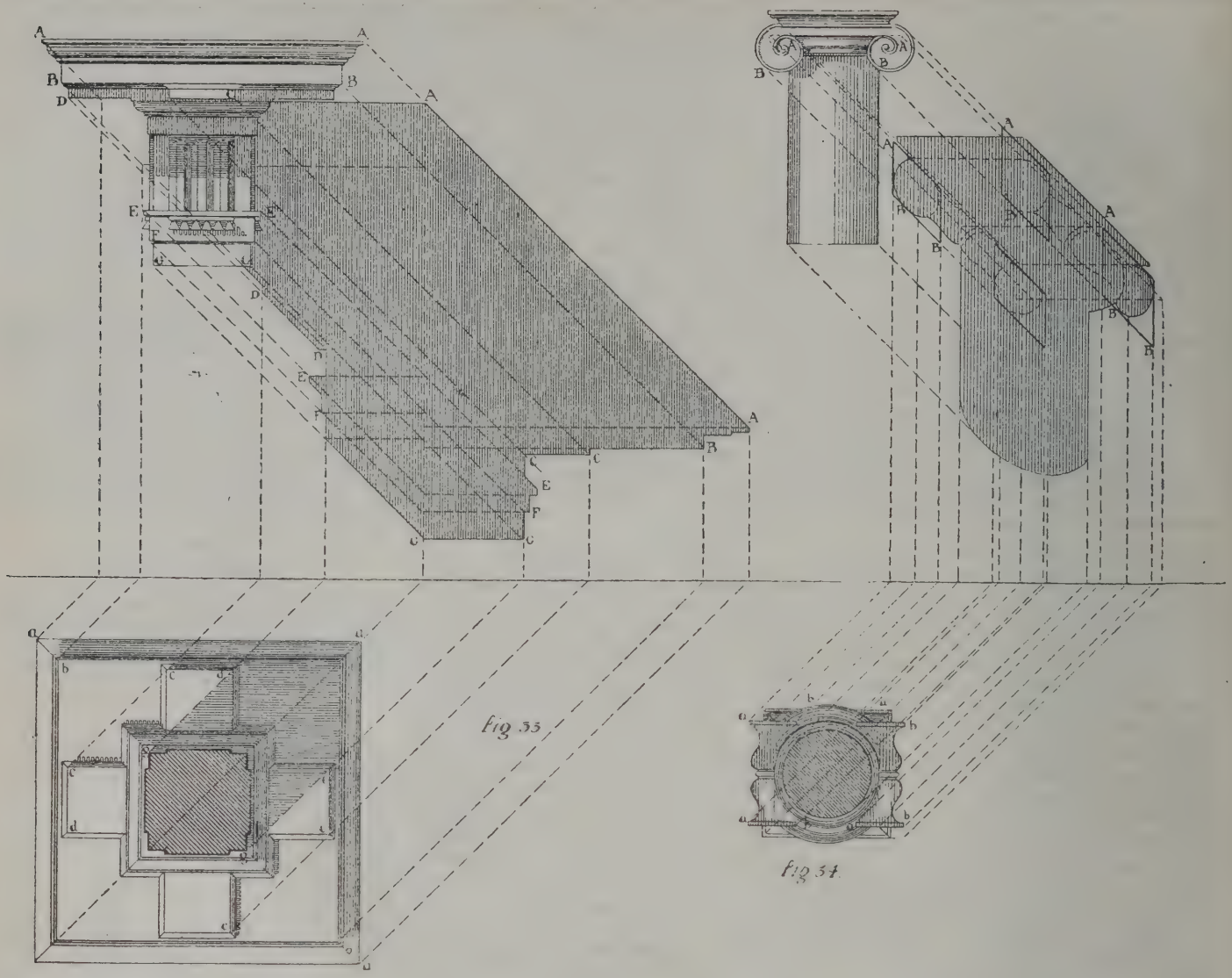


Fig 33

Fig 34

			£	s.	d.
Add if above 30ft. super. in one stone		per foot super.	0	0	3
Landings, 3in., sawn one side		ditto	0	1	9
Ditto 4in	ditto	ditto	0	2	2
Ditto 5in.	ditto	ditto	0	2	8
Ditto 6in.	ditto	ditto	0	3	3
Ditto 7in.	ditto	ditto	0	3	10
Add half-sawing if sawn two sides.					
Hearthstones, 1½in., tooled		ditto	0	1	2
Ditto 2in.	ditto	ditto	0	1	3
Ditto 2½in.	ditto	ditto	0	1	4
Ditto 3in.	ditto	ditto	0	1	5
Ditto 1½in., sawn		ditto	0	1	3
Ditto 2in.	ditto	ditto	0	1	4
Ditto 2½in.	ditto	ditto	0	1	5
Ditto 3in.	ditto	ditto	0	1	6
Paving, self-faced, laid in parallel courses—2in.	ditto	ditto	0	0	9⅓
Ditto 2½in.	ditto	ditto	0	0	10½
Ditto 3in.	ditto	ditto	0	0	11⅔
Ditto 2in., tooled		ditto	0	0	10⅓
Ditto 2½in.	ditto	ditto	0	1	0
Ditto 3in.	ditto	ditto	0	1	1⅓
Ditto 2in., rubbed		ditto	0	0	11⅓
Ditto 2½in.	ditto	ditto	0	1	1
Ditto 3in.	ditto	ditto	0	1	2⅔
Chimneypieces, in shelf, jambs, frieze, &c.—1in. rubbed		ditto	0	1	2⅔
Ditto 1¼in.	ditto	ditto	0	1	5
Ditto 1½in.	ditto	ditto	0	1	7
Ditto 2in.	ditto	ditto	0	1	11
Ditto, in boxed chimneypieces—					
Ditto ¾in.	ditto	ditto	0	1	2⅔
Ditto 1in.	ditto	ditto	0	1	5
Ditto 1¼in.	ditto	ditto	0	1	8
Ditto 1½in.	ditto	ditto	0	1	10
Ditto 2in.	ditto	ditto	0	2	3
Sinks, 4in., tooled		ditto	0	2	2
Ditto 5in.	ditto	ditto	0	2	5
Ditto 6in.	ditto	ditto	0	2	8
Steps and thresholds:					
Ditto, tooled two sides, and bedded in cement—9 by 6		per foot run	0	2	5
Ditto 10 by 6	ditto	ditto	0	2	10
Ditto 11 by 6	ditto	ditto	0	3	0
Ditto 12 by 6	ditto	ditto	0	3	5
Ditto 11 by 7	ditto	ditto	0	3	8
Ditto 12 by 7	ditto	ditto	0	3	11
Ditto 13 by 7	ditto	ditto	0	4	2
Ditto 15 by 7	ditto	ditto	0	4	11
Ditto 18 by 7	ditto	ditto	0	5	8
Ditto, rubbed two sides, and bedded in cement—9 by 6		ditto	0	2	7
Ditto 10 by 6	ditto	ditto	0	3	0
Ditto 11 by 6	ditto	ditto	0	3	3
Ditto 12 by 6	ditto	per foot run	0	3	8
Ditto 11 by 7	ditto	ditto	0	3	11
Ditto 12 by 7	ditto	ditto	0	4	2
Ditto 13 by 7	ditto	ditto	0	4	5
Ditto 15 by 7	ditto	ditto	0	5	3
Ditto 18 by 7	ditto	ditto	0	6	0
Add for back jointing		ditto	0	0	2
Add for moulded nosing and sunk riser		ditto	0	0	9
Spandrel steps, rubbed all round, and bird'smouth rebated 9 by 6		ditto	0	2	5
Ditto 10 by 6	ditto	ditto	0	2	9
Ditto 11 by 6	ditto	ditto	0	3	2
Ditto 12 by 6	ditto	ditto	0	3	6
Ditto 11 by 7	ditto	ditto	0	3	8
Ditto 12 by 7	ditto	ditto	0	3	11
Ditto 13 by 7	ditto	ditto	0	4	2
Ditto 15 by 7	ditto	ditto	0	5	0
Add for moulded nosing, &c.		ditto	0	0	9
Window sills, tooled, weathered and throated—8 by 3		ditto	0	1	3
Ditto 8 by 3½	ditto	ditto	0	1	5
Ditto 9 by 4	ditto	ditto	0	1	7
Ditto 10 by 4	ditto	ditto	0	1	9
Ditto 11 by 4	ditto	ditto	0	1	11
Ditto rubbed ditto, sunk, weathered, and throated, 8 by 3		ditto	0	1	6
Ditto 8 by 3½	ditto	ditto	0	1	8
Ditto 9 by 4	ditto	ditto	0	1	10
Ditto 10 by 4	ditto	ditto	0	2	1
Ditto 11 by 4	ditto	ditto	0	2	4
Curbs, tooled three sides, and bedded in cement—5 by 6		ditto	0	1	4
Ditto 6 by 6	ditto	ditto	0	1	7
Ditto 7 by 6	ditto	ditto	0	1	10
Ditto 8 by 6	ditto	ditto	0	2	1
Ditto 9 by 4	ditto	ditto	0	1	7
Ditto 9 by 5	ditto	ditto	0	1	11
Ditto 9 by 6	ditto	ditto	0	2	4
Ditto 9 by 8	ditto	ditto	0	3	2
Add for chamfer per foot run		ditto	0	0	2
Add for rounding on top edge		ditto	0	0	4
Add for rebate		ditto	0	0	3
Curb 5 by 6 rubbed three sides and beaded		ditto	0	1	6
Ditto 6 by 6	ditto	ditto	0	1	9
Ditto 7 by 6	ditto	ditto	0	0	2
Ditto 8 by 6	ditto	ditto	0	2	3
Ditto 9 by 4	ditto	ditto	0	1	9
Ditto 9 by 5	ditto	ditto	0	2	1
Ditto 9 by 6	ditto	ditto	0	2	6
Ditto 9 by 8	ditto	ditto	0	3	3

SHADOWS.—X.

We will next determine the shadow of the entablature of the Doric order. We must carefully draw both plan and elevation, and from the corresponding points in each, draw the shadow line at 45°. As before, the projection of the lines from the plan, and their intersection with the lines in the elevation, will give us the various points and lines for the construction of the shadow. A B will be the form of the shadow of the moulding from A to B, C C the shadow thrown by the projecting (modillion) C C, casting also a part of its shadow on the upper portion of the frieze. The modillion D throws a projecting shadow at D D. The architrave E G G E forms the shadow E G G E. The shadow, although appearing simple, must nevertheless be carefully constructed.

At Fig. 34 we have an Ionic capital, of which we wish to find the shadow thrown against the wall plane. At the points of tangent to the volutes A, B, A B and *a b*, &c., we draw the shadow lines at 45°, their intersection will give us the traces of the shadow of the containing parallelograms A B, A B, &c. Within these we may indicate the curve of the volutes. With a little care the remainder of the shadow of the capital is easily found by following the ordinary rules.

The consecration of the Roman Catholic Church of Our Lady and All Saints', Stourbridge, took place on Friday. The church, which is one of fine proportion and architecture, built from the designs of Mr. E. Pugin, was opened as long ago as 1854; and since then important accessory work has been carried out, the last thing receiving attention being the decoration of those parts of the interior of the church which had not hitherto been dealt with. The consecration of the church has stood over till it should be entirely free from debt. From first to last the church and the other buildings grouped near it have cost some £10,000. The whole of the decorations have been carried out by the same artist, Mr. R. Jeffrey Hopkins, of Abergavenny.

THE LONDON CARPENTERS' STRIKE.

THE outlook in the great struggle between the metropolitan master builders and their carpenters, now in the twelfth week of its acute stage, appears much more favourable to the men's ultimate success than it did a fortnight or so since. Following up the withdrawal of all hands from 29 firms which had hitherto taken no part in the dispute, the joint committee have this week drawn men out of thirty-one other firms. Of these sixty firms, thirty-three have thus far conceded the terms demanded, a 47 hours week and 10d. per hour, so that the number of men to be supported by the committee has been only increased by 600, and is still under 3,000. Funds are coming in steadily from the provinces, and the Amalgamated Society of Engineers has issued a circular to members asking for a vote on the question of making 3d. per week levy on each member till the strike ends. The mill-sawyers and wood-cutting machinists, at a meeting held in Bishopgate-street on Monday night, decided to give six days' notice to the master builders that, unless the carpenters' proposals were conceded, they should also cease work. Mr. T. Chandler, of Manchester, general secretary to the Amalgamated Society of Carpenters and Joiners, has been in London, accompanied by Mr. R. Day, chairman of council, inquiring into the working of the pickets and other arrangements.

At the Hyde Park demonstration in favour of the eight hours movement on Sunday afternoon it is estimated that 10,000 persons were present, and a resolution expressive of sympathy with the carpenters and joiners now on strike or locked out, proposed by Messrs. Matkin and Bachelor, was carried unanimously.

At the Marylebone Police-court, on Saturday, Francis George Burton, carpenter, was summoned by his employer, Mr. Edward White, for having absented himself from work without notice. Defendant, in lieu of payment by the hour, was paid a weekly salary of forty-five shillings, the engagement to be terminated by a week's notice on either side. At the commencement of the carpenters' strike Burton left without notice, and his employer sustained damage by non-completion of work and loss of orders. Mr. Cooke granted complainant £5, under the Employers' and Workmen's Act, for the damage thereby sustained.

At St. Helen's, Lancashire, the dispute in the building trades is in a fair way to being settled, both sides having agreed to refer the matter to arbitration. At Norwich the strike among carpenters, joiners, and bricklayers ended on Saturday, when the men unanimously decided to return to work at the advance of ½d. an hour offered by the masters a fortnight previously, and then rejected by an overwhelming majority.

The Prince and Princess of Wales will open the Victoria Law Courts at Birmingham on Tuesday next. The buildings, which have been erected from the designs of Messrs. Ingress Bell and Aston Webb, were illustrated in our issue of August 13, 1886.

On Saturday afternoon a Baptist chapel, which has been erected at the corner of Jenkins-street and Coventry-road, Small Heath, Birmingham, was formally opened. The new building is 52ft. long by 72ft. wide, and has an open-timbered roof. The style is Gothic, but the front has been plainly treated, in view of future extensions. Accommodation is provided for 700 people, as compared with 500 in the old chapel. It is proposed ultimately to attach to the chapel a lecture room and a suite of class-rooms for children. The total cost of the building and freehold site is about £5,000. The building was erected by Mr. T. Johnson, Nechells, to the designs of Messrs. Ingall and Son.

New waterworks constructed to supply a population of 13,000 in the district of the local board for Audley, Staffs, were opened on Wednesday week. The supply is derived from a shaft 104ft. deep, sunk at Mill Dale, Balterley, and the cost has been £15,000. Messrs. Ford and Slater, engineers, Burslem, prepared the plans, and the work has been carried out under the superintendence of Mr. Joseph Cope, of Talk-o'-th'-Hill, acting as clerk of works. The contract for the various works have been carried out at the Union Foundry, Kidsgrove, for the engine, boilers, pumps, rising main, and distributing mains; by Mr. Renshaw for the high service reservoir; by Mr. Bowden, of Burslem, for the engine and boiler houses and chimney stack; and by Messrs. Smith and Taylor for the foundation for reservoir and for a weir in the brook.

Building Intelligence.

CHEETHAM, MANCHESTER.—A new out-patients' department and dispensary buildings are about to be erected in York-street, Cheetham, for the committee of management of the Clinical Hospital for Women and Children, situate in Park-place, Cheetham. The buildings will occupy the site of two large houses adjoining to the Jews' Synagogue, York-street. The back portion of the premises will be pulled down, and on the site will be erected a dispensary, including a large waiting-room 49ft. by 31ft. The front portion of the premises will be adapted so as to provide consulting and waiting rooms for the medical and surgical staff. The elevation to York-street will be in terracotta of English Renaissance type. The cost of the new portion and the alterations will be about £2,000. The architects are Messrs. Mangnall and Littlewoods, and the builders Messrs. Wilson and Toft, all of Manchester.

ST. PANCRAS.—At the last meeting of the St. Pancras Board of Guardians a letter was read from the architects (Messrs. A. and C. Harston) reporting that the builders are not progressing with the works with sufficient expedition, and as to the manner in which the builders disregard their directions; and stating that in accordance with the terms of the contract the Guardians are empowered to dismiss and discharge the contractors from the further execution of the works, they not having complied with the notice served upon them on the 11th of June, requiring them to remove certain brickwork in accordance with the specification. The architects add that as the matter now stands, either they (the architects) must abdicate all control and responsibility in connection with the works, or the Guardians must exercise the power vested in them. A long discussion ensued, and the following resolution was agreed to:—"That the clerk be instructed to inform the contractors that the Guardians must insist upon the works being executed strictly in accordance with the contract, and in compliance with the direction of the architects."

Engineering Notes.

KINGSTON-ON-THAMES.—The water supply for Nunhead and district is obtained from Hampton, being pumped thence by the Southwark and Vauxhall Water Company through some 15 miles of iron main and stored for distribution in the reservoir at Nunhead. The supply of water has recently had to be increased, and this has been done under Mr. J. W. Restler, the engineer to the water company, by laying a second main from Hampton to Nunhead. This involved the construction of an iron subway under the Thames just below Kingston Bridge, which subway has recently been completed. It is circular in section, 9ft. diameter, and is constructed of cast-iron plates 1in. thick and bolted together in segments forming rings 18in. deep. The method employed in driving the tunnel and fixing the plates was similar to that adopted in the construction of the City and South London Electric Railway. An iron shield of slightly larger diameter than the subway itself was forced forwards into the clay by powerful hydraulic jacks for a distance of about 18in., sufficient to insert one ring of the cast-iron plates. These plates were then fixed and bolted together in position and the shield again impelled forward as before. By these means the earth in the tunnel was taken out as nearly as possible to the precise dimensions of the iron rings to be inserted. In order, however, to make the work perfectly solid and secure, a grouting of liquid cement was forced in behind and around the rings when finally fixed, thus filling up every possible fissure and crevice between the iron and the surrounding clay. The subway is 600ft. long under the river, and it has been completed in the short space of nine weeks. The whole length of the tunnel is in the London clay, and at one point the thickness between the top of the subway and the bed of the river is only 2ft. 6in. The cast-iron main, of 42in. diameter, which conveys the water from Hampton to Nunhead, is divided in the tunnel into two pipes of 31in. diameter each. The work has been carried out by Messrs. John Aird and Sons as contractors.

TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, 332, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

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RECEIVED.—J. A. and Son—J. E. and Co.—B. and B.—L. D. Co.—L. S. B.—J. L. and Co.

Correspondence.

PARAFFIN-COPAL MEDIUM FOR MURAL PAINTING.

To the Editor of the BUILDING NEWS.

SIR,—In the BUILDING NEWS of last Friday there is a paragraph (on page 40) which attributes to Mr. Reynolds Stephens not merely the selection of the paraffin-copal medium for his mural painting in the Royal Academy, but its invention. I am sure that my friend, the artist you name, has himself made no claim of this sort. I described the medium in question and its advantages in a lecture to the Architectural Association in 1862; but even so early as the year 1859 I mentioned, in a paper read before the Oxford Architectural Society, my first trials of paraffin-wax in painting. The medium and its preparation and employment are discussed in my "Chemistry of Paints and Painting" (Seeley and Co.).

It should be added that a pure paraffin-wax, having a melting-point of 140° to 150° Fahrenheit is required for this medium. Mr. A. P. Laurie, Fellow of King's College, Cambridge, now prepares my paraffin-copal medium, and it, along with the pigments known as the "Cambridge Colours," are to be obtained of several agents.—I am, &c.,

A. H. CHURCH, F.R.S.

Shelsley, Kew Gardens, July 13.

ARCHITECTURAL TURNSPITS.

SIR,—The case of "Cutler v. North" reminds us that whenever an architect is roasted, some other architect is always ready to turn the spit. That is the difference between the architectural profession and the medical one; and that, too, he

to account for the different valuation which the public puts on its architects and on its doctors.

There is, however, no accounting for tastes, and a note in one of the professional journals of last week shows that in some people's estimation the office of architectural turnspit is an honourable one. Let us honour, then, those to whom honour is due, and let every gentleman who has filled this honourable office be distinguished for ever after by the letters "A. T. S."—I am, &c.,

X².

Intercommunication.

QUESTIONS.

[10581.]—**Sealing-wax on Drawing-Board.**—Would some kind reader inform me how to remove the sealing-wax, which I use instead of pins or paste, from my drawing-board?—WAX.

[10582.]—**Concrete Swimming-Bath.**—Will one of your numerous readers kindly inform me of a simple method for determining the thickness of concrete necessary to form the sides and bottom of a swimming-bath having a superficial area of about 1,500ft., and to be constructed in good soil?—OTTER.

[10583.]—**Sketching Tour in Yorks or Lincolnshire.**—Can anyone suggest, through your Intercommunication Column, an outline sketch of route for a week or ten days' sketching tour—Yorkshire or Lincolnshire preferred? Particulars of buildings will be acceptable.—J. B. M.

[10584.]—**Bicycle Sketching Tour.**—Would some one map out for me a sketching tour (riding a bicycle) from Northampton, viâ Oxford and Winchester, to Southampton and the Isle of Wight, with distances from place to place, and all architecturally interesting places? Also another route home.—H. NORMAN.

[10585.]—**Mortar.**—How can the composition of mortar, and the proportion and quality of lime therein, be readily estimated? How long after the lime is slaked and mixed will it retain its full strength?—BARROW.

[10586.]—**Damp Rot.**—About a year ago the ceiling of my wine-cellar fell in, and the joists supporting the hall tiles were found to be quite rotten. Between the old bearers, which were left in so as not to disturb the tiles, new ones were fixed and left unceiled. There is ventilation into the main cellar and over the door, but a white fungus, heavy with wet, is now rapidly spreading over all the timbers. Can any reader tell me how to stop this?—ANXIETY.

[10587.]—**Damp.**—Parts of an outside wall are so damp that the paper is quite spoiled. Can this be prevented by stripping off the plaster and using neat cement?—PORTLAND.

[10588.]—**Northamptonshire.**—I should be much obliged if any of your numerous readers would tell me a good sketching centre in Northamptonshire, and also the best guide-book for one wishing to study architecture.—YORKSHIREMAN.

[10589.]—**Haulage.**—What is fair proportion, or percentage, to take off cost of house of, say, £800 or £900 in value, for haulage of all materials? Distance from station to site two miles.—QUERIST.

[10590.]—**Triforium.**—Would some reader inform me the reason why the "Triforium" is so called? The word obviously means "three openings," but I cannot see the connection.—A READER.

CHIPS.

In the courtyard of Somerset House, Messrs. Peto Brothers, the builders, are erecting a drill hall for the volunteers.

The Glenholm hydropathic establishment at Rothesay, which was destroyed by fire on Friday night, was the first and the largest of its class in Scotland. The damage done is between £40,000 and £50,000.

A church is in course of erection at Garth, near Maesteg, Glamorgan, to accommodate about 200. Mr. W. Cox, of Llandaff, is the contractor. Messrs. Halliday and Anderson, of Cardiff and Llandaff, are the architects.

The building of the Warrington branch of the National Provincial Bank of England is now proceeding rapidly. The work is being carried out under the supervision of Messrs. Gribble, architects. The contractor is Mr. J. W. Beevers, of Warrington.

The work of restoring St. Mary's Church, Wolverhampton, which was commenced in 1887, has now been completed. The scheme comprised the erection of a new vestry and parish room, enlarging the infants' school, and improvements and alterations in the church, including the re-flooring and re-seating of the south transept, remodelling and changing the site of the pulpit, a new gas service, removing the north and south aisle galleries, re-fronting, flooring, and seating the transept and west galleries, and repairing the organ. The cost has been over £1,200.

At Monday's sale of the art collection formed by the late Mr. Cavendish-Bentinck, M.P., at Messrs. Christie's, a picture by G. B. Tiepolo—the Madonna before the Almighty, with angels, was purchased by Mr. Doyle for the Dublin National Gallery for 50 guineas.

LEGAL INTELLIGENCE.

THE RIGHT TO SINK A WELL ON ONE'S OWN LAND.—TENDRING HUNDRED WATERWORKS COMPANY V. FREE, RODWELL, AND COMPANY.—This case, heard last week in the Queen's Bench Division, before Mr. Justice Denman and Mr. Justice Wills, raised an important question—whether a person can be restrained from digging a well on his own land if the effect is to interfere with or pollute the water of his neighbour's well. The question had arisen under these circumstances. In 1886 the plaintiff water company sank an artesian well on land at Mistley, adjoining that of Messrs. Free and Company, maltsters and brewers, near the river Stour, in Essex. The land on which the Company's well was sunk had been acquired from Messrs. Free, under a contract by which the latter firm were to have a pure supply of 48,000gals. a day, and were not to sink any well between the railway and the road, which was near the river. Messrs. Free, however, had lately opened a well on the other side of the road between the road and the river, which at that point is tidal, and the water company objected to the new well as likely to let brackish water into the subterranean springs supplying their well. Hence they brought an action, in which they claimed damages for the wrongful drawing and abstraction from the plaintiff's mains by the defendants of large quantities of water of the plaintiffs in excess of those they were entitled to draw, and for an injunction to restrain the defendants. An application had been made on the part of the water company for an interim injunction; but the judge at chambers, Mr. Justice Henn Collins, refused the application, and so it came before the court by way of appeal. The court now refused to issue the interim injunction, the appeal being dismissed with costs.

A HOUSE THAT WAS NOT BUILT.—In the Lord Mayor's Court on the 29th ult., before Mr. Roxburgh, assistant judge, and a common jury, Mr. George Walter Stanham, architect, 100a, Queen Victoria-street, sued Mr. Bilton, a sub-inspector of schools, residing at Gunnersbury, to recover £40 for professional services rendered. In June of last year the defendant informed the plaintiff that he was desirous of building a house at Hazlemere; the plaintiff was instructed to act as architect. The defendant told the plaintiff that he did not wish to spend more than £500, and he expressed a desire to purchase his own stoves and mantelpieces. The plaintiff, in accordance with instructions, prepared the necessary plans; but the house was never built, owing, as the defendant said, to the plans produced by the plaintiff being such that the building could not be erected at all except at a cost which was more than double the limit which he had fixed. The claim was made up of £1 for travelling expenses, £1 7s. 6d. for stationary charges, £5 10s. commission, alleged to have been agreed by the defendant in respect of plans which were rendered useless by the defendant's alterations, £5 5s. for an original specification, and £27 12s., three per cent. on the lowest tender. The question left to the jury was whether or not the limit fixed by the defendant was £500. The jury found for the plaintiff for £25 4s. 3d.

DELAYING THE EXECUTION OF A CONTRACT.—HENRY V. DUNDALK GUARDIANS.—This case was heard in Dublin last week before Mr. Justice Gibson and a common jury. The action in the first instance was instituted by the Dundalk Board of Guardians against Mr. Henry, a contractor for the building of labourers' cottages, and his sureties, for the recovery of penalties for the non-completion of the contract within the time specified in the bond. The contractor filed a counterclaim amounting to £357 12s. for loss sustained by alleged breaches of contract, on the grounds that possession of some of the sites had not been provided by the guardians, and that variations had been made in the plans subsequent to acceptance of the tenders and the signing of bonds. Some time after proceedings were instituted the guardians discontinued the action brought by them, but Mr. Henry proceeded with his counterclaim, so that practically, when the case came on for hearing, Mr. Henry was in the position of plaintiff, and the guardians defendants. Mr. Henry deposed that in March, 1889, his tender for the building of twelve cottages was accepted by the guardians; there were four cottages in blocks of two each in the townland of Newtown, at £217 per block; two in one block at Tullydrum, at £217; four in two blocks at Grange, at £216; and two single cottages at Grange at £115 each; his tender was accepted on March 25, and he signed the bonds on April 2; the cottages were to be built in accordance with plans and specifications prepared by the engineer employed by the guardians, Mr. Cahill. The cottages were to have been completed by August 1, but great delay occurred, as he could not get possession of the sites, so that he lost owing to the increase of wages in the harvest time, and to the tradesmen and labourers working shorter hours in winter than in summer. The jury gave a verdict on all counts for the contractor. The jury found the guardians did not provide sites in Tullydrum or Grange, and assessed the contractor's loss in each case at £21 13s. For having materials prepared for the cottages in both townlands, they assessed his loss at £12 10s. in each. These several sums amounted to £68 6s., and a verdict for this amount was entered, and judgment given.

IN THE QUEEN'S BENCH.—JENNINGS V. NURSE.—This was an action brought by the well-known wooden letter maker at 263, High Holborn, to recover damages for injury to the light of his workshop in rear of his premises by the erection of a building by the defendant. Messrs. H. H. Bridgman, S. Goss, and E. A. Grüning were surveyors for the plaintiff, and Messrs. R. J. Worley, G. Edwards, and H. Lovegrove for the defendant. Verdict, damages £250 and costs.

THE TIVOLI CONTRACT.—At the Kent Assizes, in the Civil Division on Saturday, Messrs. Heighway Dupree, of Piccadilly, plainted an action against Messrs. Kirk and Randall, of Woolwich, for various sums in carrying out contracts for the defendants. Mr. Winch, Q.C., said that in 1888 the plaintiffs had contracts in respect of work at the Tivoli Music Hall, Strand, and the Café Monico, near Piccadilly Circus, and in carrying out their works disputes arose between the parties as to their respective rights. Plaintiffs commenced an action in the Queen's Bench, when an agreement was come to, and under this agreement the present action arose, the main question being as to whether the architect engaged by the Tivoli Company had power under the agreement to order the work to be done. Mr. Channell, Q.C., for the defence, contended that the architect had not the power, and he called Mr. Joseph Randall, whose evidence was to the effect that all authority to order the work which had been done was withdrawn from the architect, Mr. C. J. Phipps, and that the extras ordered by Mr. Phipps comprised structural alterations, which, even if authority had not previously been withdrawn, he had no power to order under the contract on which the plaintiffs relied, as that contract had reference to decorative work only. His Lordship (Sir J. C. Mathew) gave a verdict for the plaintiffs for their full claim, which involved some thousands of pounds. It was stated that the defendants had sustained a loss of £25,000 over the Tivoli contract.

ARCHITECT'S CHARGES.—At the Kent Assizes Mr. F. Rogers, architect, of Bromley, sued Mr. R. M. C. James, of Bedford-square, for £123, balance of his account for work done with respect to the erection of a house at Scott's Park, near Chislehurst, the defence to which was that the charges were not fair and reasonable, and the defendant counterclaimed for £870 for negligence in complying with the contract. The plaintiff got out plans of a house for defendant from instructions from defendant and his wife. The house was to cost about £2,000; but on the plaintiff working out the plans he found the cost would be about £2,500, and the result was he received instructions to prepare a more modest affair, which he did, and the work was done under the partial supervision of the plaintiff. In the original plans the wine-cellar was to be built 8ft. high, but owing to water coming in it could only be built 6ft. 3in. high. Plaintiff said all his charges were based upon the scale of the R.I.B.A. Cross-examined, the plaintiff admitted that he could not say whether the foundations were according to the contract. He had no reason to believe that concrete had been put in the foundation. The jury returned a verdict for the plaintiff for £58 on the original claim, and for £90 for the defendant on the counter claim.

At the Tiverton Baptist Chapel a memorial consisting of an engraved brass with surroundings of polished alabaster, has been erected during the past week. It has been erected by the Baptists of Tiverton to the memory of the late Alderman Lane, J.P. Mr. Harry Hems, of Exeter, has carried out the work.

At Tuesday's meeting of the London County Council, the Building Act Committee presented a report recommending that Mr. Ellis Marsland, M.S.A., who has been district surveyor for East Kensington since 1885, be appointed district surveyor for Camberwell, upon condition that he resign his present appointment, and that Mr. A. Crow, A.R.I.B.A., be appointed district surveyor for Whitechapel, Christ Church, Spitalfields, the hamlet of Mile-end New Town, and the Tower Liberty. The recommendations were adopted.

At a general meeting of the shareholders of the Llandudno Pier Company, held on Friday, it was unanimously resolved to build a new theatre. Plans and designs have been prepared by Mr. Daniel Arkell, architect, Birmingham, and the work is intended to be pushed forward, so as to have the theatre ready for next season. The site for the new building is the main entrance of the pier. The style chosen is an adaptation of Romanesque, with a Byzantine treatment of ornament. The elevation will be faced with red brick and stone dressings. The building will hold about two thousand persons.

PARLIAMENTARY NOTES.

THE CONTRACT FOR REPAIRS OF PUBLIC BUILDINGS.—Mr. Buxton asked the First Commissioner of Works, on Monday, whether Messrs. Holland and Hannen, contractors for repairs, &c., of public buildings, agreed under their contract to pay their painters employed under the contract at the *minimum* rate of 8½d. an hour, the ratio generally accepted as current in the trade for competent workmen; and whether he was aware that, in violation of their agreement, they had within the last few weeks reduced the wages of some, or all, of the painters engaged on the work to 7½d.; and, if so, what action he proposed to take in order that the resolution of the House of February 13, in regard to the payment of fair wages under Government contracts, should be properly enforced? Mr. Plunket: The question of the hon. member seems to be based upon a misconception. Messrs. Holland and Hannen are not departing from the terms of their contract. The facts are that in the schedule of rates accompanying their tender the *minimum* rate for painters was higher. But this was owing to an error, and when they discovered the error, Messrs. Holland and Hannen wrote to the Office of Works for permission to correct it, and to reduce the *minimum* rate for painters to 7½d. per hour. Having satisfied myself that for much painters' work 7½d. would represent the rate of wage "generally accepted as current for competent workmen," I agreed to the alteration, and the contract has been drawn on the basis of a range of wages for painters of from 7½d. to 9½d. per hour.

HANOVER CHAPEL.—In the House of Commons, a discussion took place on the Hanover Chapel Bill, which authorises the sale of the present chapel, the well-known edifice in Regent-street, designed by Professor C. R. Cockerell, and provides for the building in Davies-street, a poorer part of the parish, of a church and vicarage on a site worth £20,000, which had been given by the Duke of Westminster. Petitions against the Bill were presented by the Royal Academy and the Royal Institute of British Architects. On a division, the Bill was read a second time by a majority of 16, the numbers being 107 to 91.

WATER SUPPLY AND SANITARY MATTERS.

CAPETOWN.—In 1888 Mr. E. Pritchard, M.I.C.E., of Birmingham, was retained by the Municipality of Capetown to report upon the best means of sewering the district and disposing of the sewage, a number of competitive plans having proved unsatisfactory. Mr. Pritchard recommended a sewerage scheme with a large carrier for conveying the sewage to a point in Table Bay, where it could be discharged into the sea. There was some hesitation in the matter of cost, and ultimately nothing was done. An appeal was then made to the Government, who appointed Mr. Clement Dunscombe to investigate the subject. That gentleman has made a report, which has been presented as a Parliamentary paper. The recommendations it contains are practically identical with the scheme proposed by Mr. Pritchard.

A German engineer has devised a new method for fixing a foundation under water. By means of a powerful blast of compressed air he drives powdered cement down into the sand or mud at the bottom of a stream. The action of the water immediately fixes the cement, and it becomes like solid rock.

On Saturday the memorial stone was laid of a Congregational church and Sunday school in the district of Horton, Bradford. The new premises are nearly ready for the roof. They stand at the junction of All Saints'-road and Horton-road. The contracts for the new church and Sunday school amount to £3,880. The design sent in by Mr. T. C. Hope was chosen in competition for the structure. The building will be of the Queen Anne type and octagonal on plan. The contractors for the work are Mr. George Day, mason; Messrs. M. and D. Thompson, joiners; Mr. S. Sunderland, plasterer; Messrs. Hill and Nelson, slaters; and Mr. J. H. Lawson, painter.

Mr. James Taylor, a well-known railway contractor, died at his residence, Westward Ho! on Monday, aged 75 years. Amongst the most important work carried out by him was the construction of the London and South-Western line from Bideford and Torrington and the Ilfracombe line, the line from Yeovil to Exeter, Aldershot railways and many other important lines. He built the Grimsby Docks and Grimsby Fish Dock, opened by Prince Albert Victor. In these undertakings he was assisted by his son, Mr. George J. Taylor, to whom he made a gift of the bulk of his property some time ago. He leaves four sons and three daughters. He had purchased Castle Cary, Torquay, with the intention of residing there. The funeral will take place to-day (Friday) at his North-country seat, Springfield Hall, Whitmore, Staffordshire.

STATUES, MEMORIALS, &c.

BURNS STATUE AT AYR.—Sir Archibald Campbell, of Blythswood, M.P., Master Mason of Scotland, unveiled at Ayr, on Friday, a statue to Robert Burns. The scheme originated with the Ayr Burns Club in 1886. In 1889, the first prize for a model of the statue was awarded to Mr. George A. Lawson, H.R.S.A., a native of Edinburgh, who has carried out the work. The pedestal is of grey Kemney granite. It stands 12ft. high, and weighs 25 tons, the height of the statue and base being rather over 21ft., the weight of the two being about 26½ tons. The statue is to be railed off, the inclosure being a triangular plot, which is to be planted with evergreens. The railing is to be presented by Sir William Arrol. The statue stands between the South-Western Railway Station and the main entrance to Ayr, known as Fauldbacks. The pedestal is constructed to admit of four bas-reliefs, in which it is intended to insert renderings from the poems of Burns—"Tam O' Shanter," "The Jolly Beggars," "The Cottar's Saturday Night," and "The Vision." The statue represents the poet standing erect, with his arms crossed, as if he was receiving an address; and the costume is that of the period. The head is modelled on the Skirving portrait of the bard.

CHIPS.

It is proposed to erect a University College and Technical Schools in Newport-road and Westgrove, Cardiff, at an estimated cost of £30,000.

The foundation stone was laid on Friday of new workhouse buildings for the Grantham Union. It had become necessary to provide fresh premises, as the Great Northern Railway Company required the land upon which the old workhouse stands at Grantham, and which adjoins the railway station. The new site comprises 6½ acres, and with the buildings, when completed, will cost £25,000. The contractors for the buildings are Messrs. Hodson and Son, of Nottingham. Mr. V. Green, of Grantham, is the architect. The buildings are to be in the pavilion style.

Plymouth Conservative Working Men's Union have made arrangements for the erection of club-rooms and offices adjoining the Conservative Club premises in Princess-square, and the work is to be commenced immediately. Mr. Chas. King is the architect, and Messrs. A. R. Lethbridge and Son the contractors.

A new hospital at Montrose Asylum, built at a cost of £18,000, from designs by Mr. Sydney Mitchell, of Edinburgh, was opened last week.

A new Foresters' Hall at Pontrilas was formally opened on Friday. Mr. Godsall, of Hereford, was the architect, and Mr. Taylor, of the same city, the builder.

A new Jubilee clock on the Congregation Church in Tontine-street, Folkestone, was inaugurated last week. Messrs. Gillett and Johnson, of Croydon, were the makers.

A new Wesleyan Chapel at Friendley, near Halifax, Yorks, was opened last week. It has cost £2,800, and the chief contracts, those for masonry and bricklaying, were carried out by Mr. John Turner, of Warley, Halifax.

A patients' private home at Woodside, Plymouth, was opened last week. The premises have been altered for their present purposes from plans by Mr. Charles King, of Plymouth, and the contractors were Messrs. A. R. Lethbridge and Son, of the same town.

At the last meeting of the London School Board, it was decided that the salaries of Mr. H. Perry, the assistant architect for building, and Mr. Bradfield, the assistant architect for repairs, the two officials who have been engaged in reporting on the defects in schools, should be raised from £325 to £400 each.

The local board of health of Alnwick have adopted plans by their surveyor, Mr. Geoffrey Wilson for the sewerage of the district. The scheme will cost £2,500, and towards this the Duke of Northumberland has offered to give £1,000.

The new schools, Warrington, are being warmed and ventilated by means of Shorland's patent Manchester grates, the same being supplied by Mr. E. H. Shorland, of Manchester.

In accordance with powers obtained by the Great Northern Railway Company in their Bill of 1889, the through line near Leeds from the west end of Bramley station to Wortley West Junction is about to be widened. This will involve a large amount of work, including the remodelling of Bramley and Armley stations, and the widening of several bridges so as to allow of four sets of rails. The tunnel under Tong-road will also have to be doubled. The plans for the widening have been prepared by the Company's resident engineer, Mr. H. W. Sadler, under the direction of Mr. R. Johnson, of King's Cross.

Our Office Table.

A SERIES of important recommendations, involving an estimated expenditure of two millions sterling, has been made by the Improvements Committee of the London County Council for the construction of new streets and the widening of existing new thoroughfares. The chief proposition is a revival of the scheme for a first-class arterial communication from Holborn to the Strand. A second and only less important proposal is also a resurrection—*i.e.*, the demolition of the island between Holywell-street and the Strand, bounded at either end by the churches of St. Clement Danes and St. Mary-le-Strand. Should this scheme be adopted, the north side of Holywell-street will be the new frontage of the Strand; and to the north of both churches the street will make a crescent-shaped curve, the shops fronting St. Mary-le-Strand being set back some 20ft. or 30ft. The objectionable "betterment" proposal, which met with well-merited ridicule and opposition last year, is revived, in less offensive forms, under the title of an "improvement rate," which is not to actually exceed the increased annual value of the property benefited. The other projects include the widening of the south-west angle of Tottenham-Court-road, by the removal of an island between that thoroughfare and Bozier's court; the widening of Nine Elms-road, Battersea Park-road, York-road, Battersea; Wandsworth-road, all in the district between Vauxhall and Clapham Junction; Sandys-row, Whitechapel, and, lastly, and not least, a new street 80ft. wide from Tooley-street to Bermondsey New-road, with a widening of the latter thoroughfare at the Old Kent-road end, so as to accommodate the anticipated traffic from the new Tower Bridge.

THE Annual Report of the London County Council for the year ended March 31st is full of questions of topical interest. The several reports of the Standing Committees include the subject of the Blackwall tunnel, and the recommendation of the committee that the engineer prepare drawings and specifications for a tunnel 27ft. extreme diameter and not less than 23ft. internal diameter for vehicular and pedestrian traffic, and that tenders be invited. The plans are being prepared under the direction of Mr. Binnie. The Building Acts Amendment is a question of interest to which we shall refer in detail. Other reports appear on highways, the Housing of the Working Classes, to which we refer this week, various street improvements, main drainage, industrial schools, parks and open spaces, theatres, and music halls.

MR. ALFRED WATERHOUSE, R.A., is adding two floors in Northumberland-avenue to Mr. John Gibson's building belonging to the Society for the Promotion of Christian Knowledge. This block was the first erected in that thoroughfare, and when built looked imposing and effective. Its prodigious neighbours, subsequently projected during the hotel mania, entirely dwarfed the building, rendering it comparatively insignificant, while its refined Classic detail is no doubt overpowered by Métropole vulgarity. Its architect declined the task of enlarging his work, and the problem has been undertaken by the Past-President of the Institute, who is thus increasing the accommodation rendered necessary by the enlarged business of the S.P.C.K., thereby bringing the building up to date, if not to the height of the adjoining colossi.

AN important scheme of dock and harbour extension and improvements received the final approval of the Leith Dock Commission on Friday. The necessity of a considerable increase to the dock accommodation of the port in the near future has for several years occupied the attention of the Commissioners, and the plans have been prepared by Mr. Peter Whyte, M.I.C.E., the superintendent of the harbour and docks. The scheme now submitted is to construct a sea wall to reclaim an area of 54 acres, and to construct thereon a deep-water dock, about 1,000ft. long and 375ft. wide, with an entrance from the harbour 66ft. wide, and having the sill laid 13ft. below low-water of spring tides, which would give a depth on the sill of about 30ft. at high-water spring tides, and about 26ft. at high-water neaps. A passage to the Albert Dock would be formed which would increase the facilities for handling deep-draught vessels in the

Albert and Edinburgh Docks, and thereby add to their efficiency and safety. The area of the proposed dock is nearly nine acres, and the available length of berthage about 2,500ft. The quays will be about 350ft. wide, which will be sufficient for the erection of wide sheds and the necessary rails, roads, and space for dealing with large cargoes. A site is shown at the north-west corner of the dock whereon a large dry dock could be constructed. The cost of the proposed dock is estimated, with the sea wall, and allowing for filling, sheds, rails, &c., at £275,000, and the deepening of the channel at £50,000—a total of £325,000; exclusive of the dry dock, which would cost £40,000.

IN his annual report to the corporation of West Hartlepool, Mr. J. W. Brown, the borough surveyor, says that during the past year his department have erected in various parts of the borough many upcast sewer ventilators. "The positions sought are," Mr. Brown says, "those adjoining high gables and where there are in existence corresponding downcast gratings at the street level. This system has been doubted by many, nevertheless it is working very satisfactorily, as in all cases where we erect a pipe we find a strong current of air coming from the sewer, and the smells previously complained of at the street level cease."

THE collection of antiquities at the Nottingham Art Museum, discovered during excavations undertaken by Lord Savile on the north shore of Lake Nemi, was opened on Wednesday by the Mayor of Nottingham, Mr. S. H. Sands. The collection consists of votive offerings in terracotta, personal ornaments, domestic and sacrificial utensils, architectural details, and decorations, sculptures, inscriptions, and coins, all from the site of the temple of Diana Nemovensis (the Artemisium described by Strabo), discovered by Lord Savile in 1885-86. The extensive series of objects bears almost entirely upon the worship of Diana at Nemi, and proves, moreover, that the offices of the temple were presided over for the most part by priestesses. Mr. G. H. Wallis, the director of the museum, has classified, arranged, and described the objects, and has compiled a catalogue with notes.

A NEW apostle of sanitation has arisen. Mr. Latham Anderson proposes to abolish the generally-approved system of house-drainage, and to adopt in lieu thereof a "single trap system," the object of which is to keep the interior surfaces of house-pipes as dry as possible, so as to prevent the formation of what he terms "germ-breeding slime." A constant current of dry air through the pipes is the object of this system. But does not the damp slime rather assist to keep dangerous organisms in a harmless condition—that is, to keep them in a position where they cannot be so active for mischief? We should rather think that the drying of the slime will give them freedom by allowing them or the spores to fill the air and to produce disease. We certainly agree with one authority in thinking that by the process of drying bacteria assume a more potent influence for mischief, as they are disseminated through the air. To kill or destroy the germs a considerable degree of heat would be necessary by the plan proposed, which, as far as we can understand, would be more productive of the evil it is sought to remedy.

CONSIDERABLE surprise and speculation have been occasioned during the past fortnight in Birkenhead by the disappearance of Mr. John Davison, a well-known builder and contractor in the town, and a member of the town council. It is believed he was last seen at a bank in Hamilton-square, on Saturday week, when he drew a large sum of money for the purpose, it was supposed, of paying the week's wages of the men in his employ. As he did not return to his office at Oxton, the men were compelled to do without their wages until Monday, when they were paid by Mr. Davison's cashier. In addition to the money which he drew on the occasion referred to, Mr. Davison is believed to have in his possession a considerable sum which he had received in the ordinary course of business from several other firms. A meeting of those associated with him in business affairs was held in the latter part of last week, and it was decided to carry on the business until the contracts in hand were finished. An interim order on a creditors' petition has been applied for, and unless Mr. Davison puts in an appearance within twelve days from the date of the interim order, a receiving order for the administration of his affairs will follow in due course.

THE American Census officials have just made a special report on the statistics of lumber manufacturing and timber products in the United States, which is of general interest. Unfortunately the Federal Government does not possess even approximate estimates of the area of timber-lands owned by it in Michigan, Wisconsin, and Minnesota, so that it is impracticable to make a calculation as to the period which will elapse before the standing timber in these States will, at the present rate of consumption, be exhausted. The amount of timber territory and standing timber owned by individual manufacturers is accurately ascertained, and it is shown that this supply will be exhausted, at the present rate, in five years. When this is gone, the only reserve in these States, which furnish nearly all the pine lumber used in the country, is to be found in the public lands owned by the State and Federal governments. As to the Federal timber lands, there are no statistics whatever. Of State lands there are tolerably accurate statistics. Minnesota, which is the only State which owns any considerable quantity of pine land, is said to hold thirteen million acres, containing twenty thousand million feet of standing timber, or enough to supply the saw-mills of the State, at their present rate of consumption, for about eighteen years. In Michigan, the amount of timber on land owned by the State is so small as not to be worth considering; and in Wisconsin there is only enough standing timber on State land to supply the local mills for about three months. Contrary to the ordinary impression, the loss by fires in the pine forests is not very considerable, the average annual loss being only less than 5 per cent. of the usual quantity cut; but the conflagrations cause great destruction in the hard-wood growth which succeeds the pine, and which has now become an important part of the timber resources of the three States in question.

AN important development of the sandstone quarries of the United States is recorded. The "bluestone" quarries of the States of New York, New Jersey, and Pennsylvania produce very large quantities. In 1889 it is said that nearly four-fifths of all the bluestone produced came from 24 counties of New York, and one-fifth from 10 counties in Pennsylvania, the New Jersey product, which was all found in the counties of Hunterton, Merer, and Sussex, amounting to less than 16,000 tons. The total value of the New York sandstone quarries, including bluestone, in 1889 amounted to 1,986,894 dollars. It appears that the States rank as follows in the product of sandstone other than bluestone: Ohio, Pennsylvania, Colorado, Connecticut, and New York. The above States contributed in value upwards of 7½ million dollars of sandstone, chiefly used in building. Bluestone is an extremely hard and durable stone, and is on this account largely used for flagging, sidewalks, curbing, &c.

WOOD pavements in Berlin have not given unqualified satisfaction. We do not know why; unless it is that the system of laying or that the particular wood used is at fault. Beech-wood has been largely employed, because it was thought that by these means the productiveness of the beech forests of Germany would be increased; but it has been found that beech-wood could not stand the test. Only on sharp inclines is hard wood used to give a foothold, the other portions being of asphalte. This practice has a lesson for us, who have all along used the same material — asphalte or wood — for both steep gradients as well as the level parts of roadways. The Berliners have sensibly adopted a rougher material for the steeper parts, and thereby lessen the cruelty to horses and save expense. A kind of ribbed or corrugated material might be put down on all inclines such as that of Ludgate-hill.

IN a letter to the *Railroad Gazette*, Mr. Charles J. Bates, of New York, describes the novel foundation of an old building standing on made ground between Washington and West-streets, on Murray, which has been recently demolished. The designer first covered the entire lot with two courses of timber, each 6in. thick, laid at right angles; over this was a bed of concrete about 6in. thick, then a layer of flat stones 2in. thick, then a course of brick set on edge, then another bed of flat stones 2in. or 3in. thick, then a course of brick laid flatways. The brick and stone were all laid in cement mortar, and the whole plastered over with a thin bed of mortar. The designer apparently intended that his building should float on the soft ground.

MESSRS. HAYWARD TYLER AND CO.'s new "C" catalogue of Pumps and Pumping Machinery is much more than a trade list. It is a really useful compendium of information respecting the specialities which have made this firm famous all over the world as manufacturers of pumps, well-frames, pumping machinery, steam fittings, and engineers' sundries. There is not a necessity for which it does not provide, and the tabular information is so well compiled, and so completely are the various appliances illustrated, that the task of selection is easy. The moderate prices throughout are also worthy of remark, especially when the world-wide reputation of the firm for good work is remembered.

THE vastness of Maine's timber wealth is not generally appreciated. Every year now 500,000,000ft. of logs are cut in the State, about one-third of this amount floating down the Penobscot; and the quantity of manufactured lumber that has been shipped from the State since the first saw-mill was started is enormous beyond description. To-day the Penobscot log crop is sawed almost wholly for the American market, New York, New England ports, and Philadelphia taking the bulk of it. An occasional cargo of "shippers," as a certain quality of pine boards are called, is sent to the Windward West India Islands, but all the other long timber is sold in the States markets. Improved machinery enables the manufacturers to get more and different dimensions of lumber out of a log than formerly, and in recent years a great variety of short lumber has appeared in the market.

CHIPS.

New auction rooms and stores were opened in Hertford-street, Hereford, last week. Messrs. G. and I. Stearne were the architects, and Mr. J. Worwood was the builder.

Mr. Goodwin S. Packer has been the architect for the new Wycliffe Hall, just opened at Southport. The size of the room is 51ft. by 33ft. by 20ft. to ceiling, which is a flat one, and ceiled with pitch pine boards.

At St. James's Church, Marylebone, on Sunday, the Rev. H. R. Haweis unveiled an east memorial window, which was designed by Mr. E. Burne-Jones, A.R.A., and executed by Mr. William Morris. The chief subject is the Good Shepherd, and the side lights are occupied by angels.

A block of steam flour mills is about to be erected at Weymouth at a cost of about £3,000. Messrs. Brown Brothers, of that town, are the contractors.

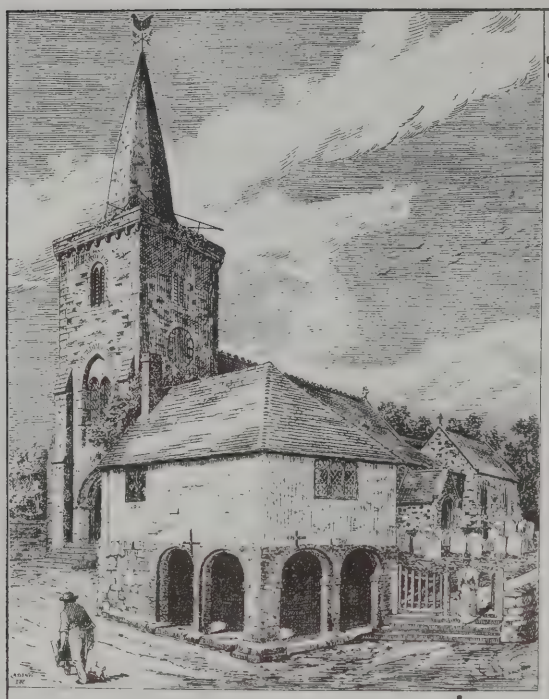
The parish church of Llangynwyd, Glamorgan, which has fallen into a very dilapidated condition, is now undergoing a complete restoration, including new nave and chancel ceiling in oak, oak seating and flooring. The peal of six bells are being rehung and tuned. Mr. W. Charke, of Llandaff, is acting as contractor. Messrs. Halliday and Anderson, of Cardiff and Llandaff, are the architects.

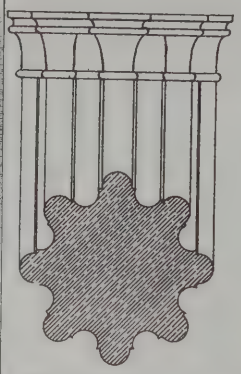
The local district council in connection with the National Registration of Plumbers held an examination at the Merchant Venturers' School, Bristol, last week, when the candidates attended from Bristol, Bath, and various parts of Gloucestershire and Wilts, and were examined in the theory and practice of the trade. Sixty per cent. of the candidates succeeded in passing the full examination qualifying for registration.

A public park, upwards of 30 acres in extent, was presented to the inhabitants of Consett and Blackhill, Durham, on Saturday, by the Consett Iron Company, in whose various works about 20,000 men are employed. The land was little better than a waste 18 months ago; now it is intersected by walks and planted with trees and shrubs suitable to its high altitude and exposed situation. Mr. C. P. Douglas, the engineer to the company, laid out the grounds, and Mr. Duncan Smith was the landscape gardener.

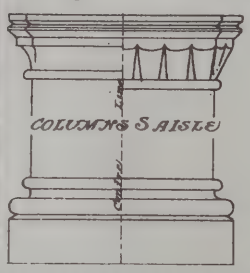
A new Wesleyan chapel at Westbury Park, Bristol, was opened on Friday. It is Early Decorated in style, and is built of Pennant stone, with Combe Down dressings. Mr. T. R. Lewis is the contractor, and the outlay has been £3,200. Messrs. Davey and Bushell, St. Michael's Park, Bristol, executed the carving, and Mr. H. Dare Bryan, of College Green, in the same city, was the architect.

The Cross Flats Park at Beeston Hill, Leeds, was opened on Saturday. It contains 41 acres of land, was purchased for £12,000, and is being laid out from designs by Mr. Beilby, consulting gardener to the Leeds corporation.





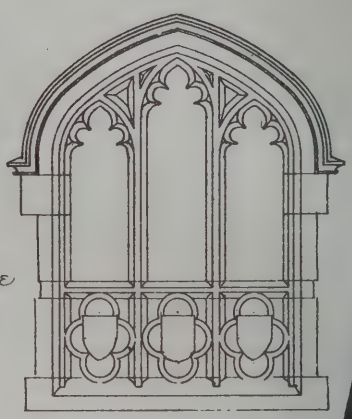
PIER CHANCEL S ARCADE



COLUMNS S AISLE

ELEVATN S.E WINDOW OGLANDER CHAPEL

SCALE 0 1 2 3 4 5 6



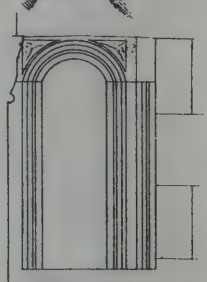
BRADING. I.W.

CHURCH OF ST MARY

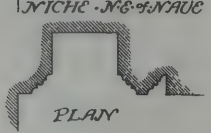
SECTION LOOKING SOUTH



LETTERING ON SOFFIT



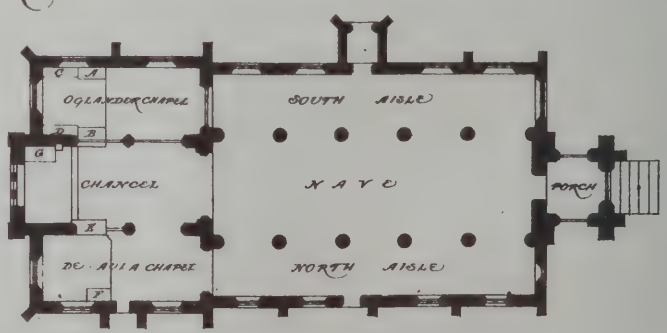
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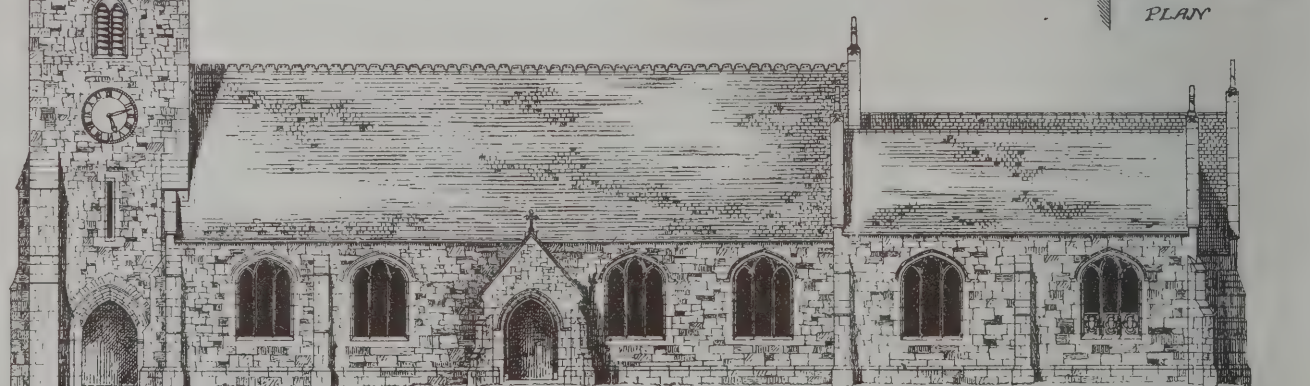
PLAN



SKETCH OF CORBELS TO TOWER PARAPET



PLAN



SOUTH ELEVATION

REFERENCE TO MONUMENTS

A JOHN OGLANDER
B OLIVER OGLANDER
C SIR WILLIAM OGLANDER
D SIR JOHN OGLANDER
E WILLIAM HOWLY
F ELIZABETH HOWLY
G JOHN CHEROWIN

SCALE FOR ELEVATNS & SECTNS

Scale of 10 5 0 10 20 30 FEET

0 1 2 3 4 FEET

SCALE FOR DETAILS

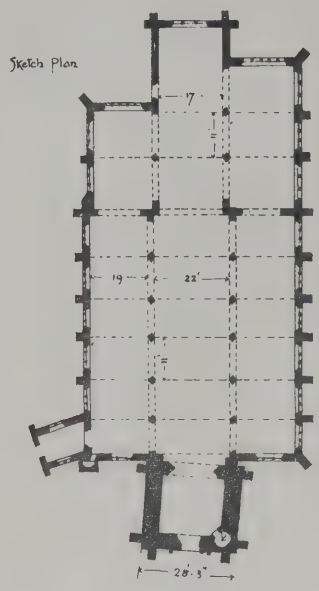
Percy J. Stone delt 1889

Photo-Lithographed & Printed by James Akerman, 6, Queen Square, W.C.

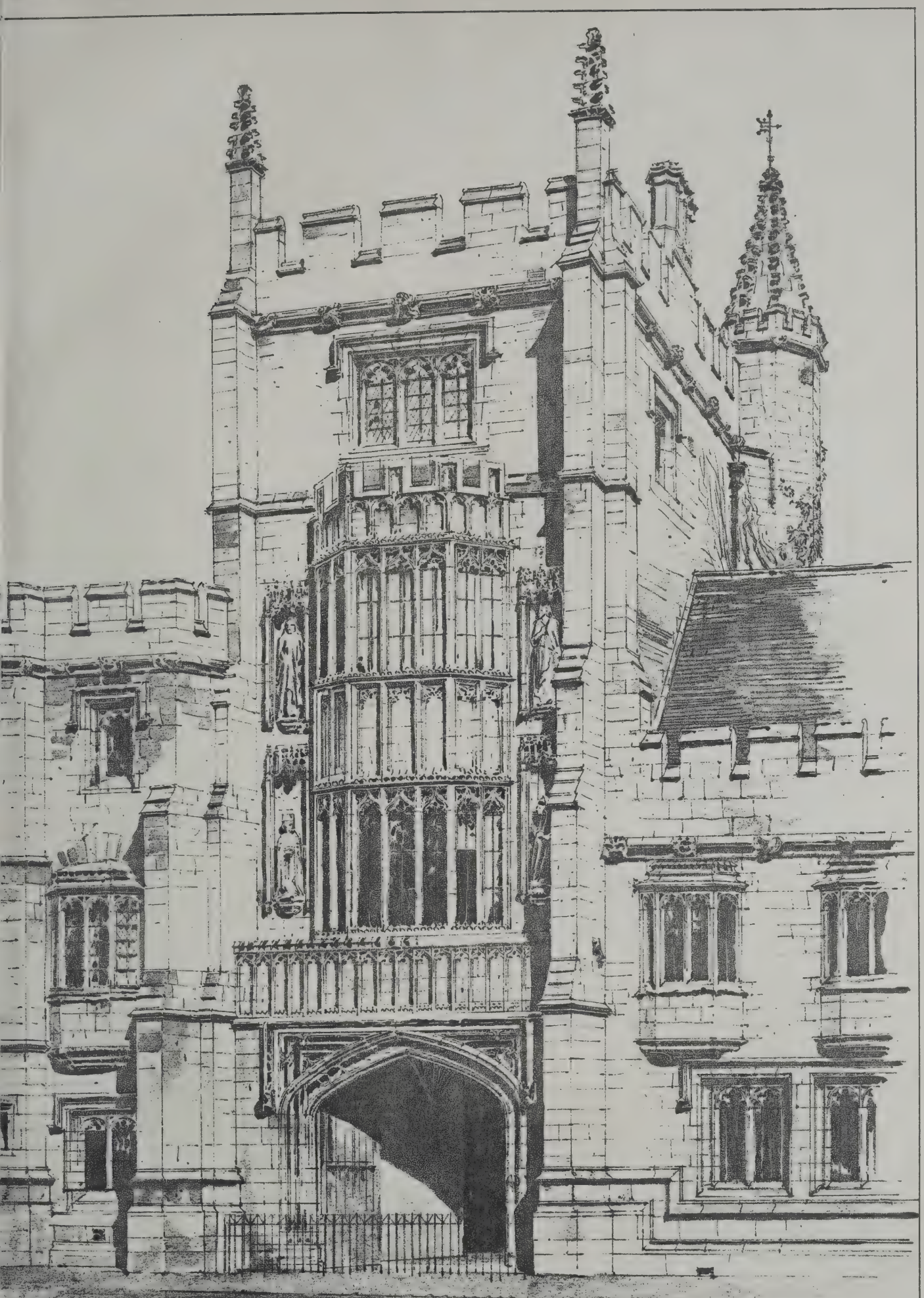


"PHOTO-TINT" by James Akerman, 5 Queen Square London W.C.

TWO CHIMNEY-PIECES DESIGNED BY THE LATE W. EDEN NESFIELD, ARCHT.



KETTERING · CHURCH · NORTHANTS ·



MAGDALEN · COLLEGE · OXFORD ·
THE · FOUNDER'S · TOWER · WEST SIDE ·

"PHOTO-TINT" by James Akerman [illegible]

DRAWINGS · BY · JOHN · BEGG ·

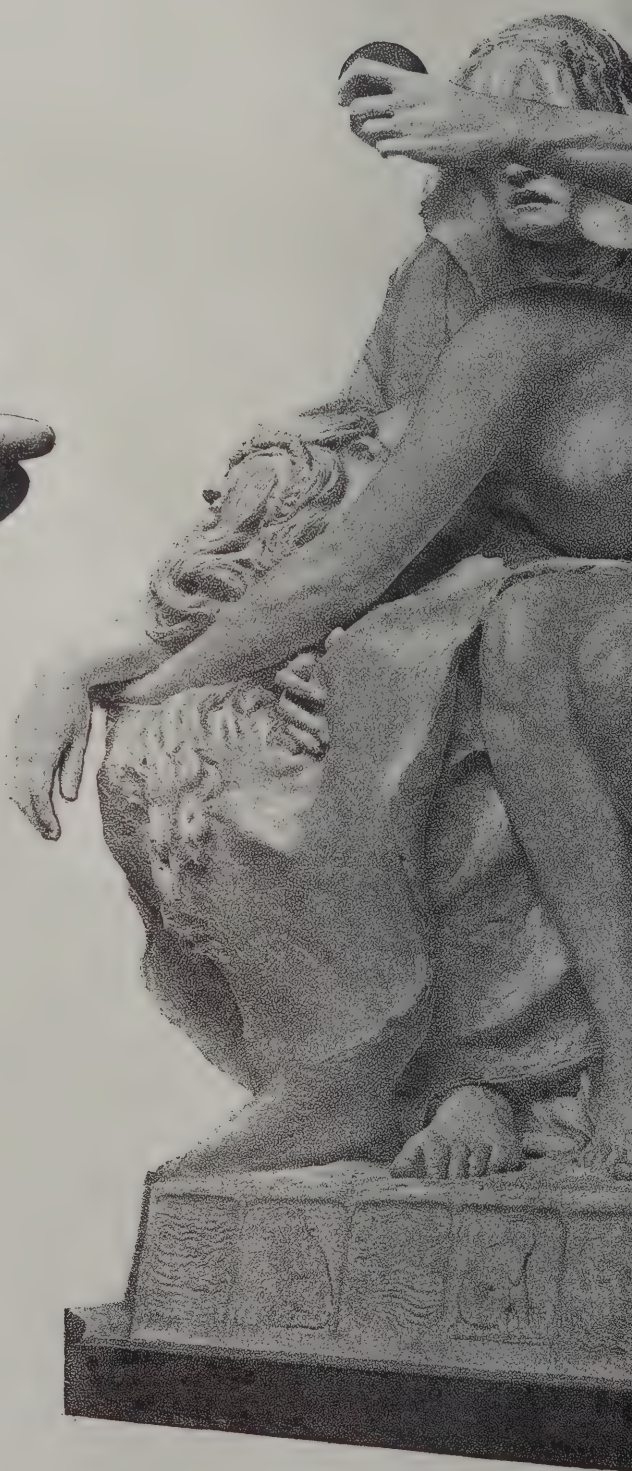
"LA SOURCE" STATUETTE & FOUNTAIN

BY T. NELSON MACLEAN



SCULPTURE AT THE R

"SIBYLLA FATIDICA



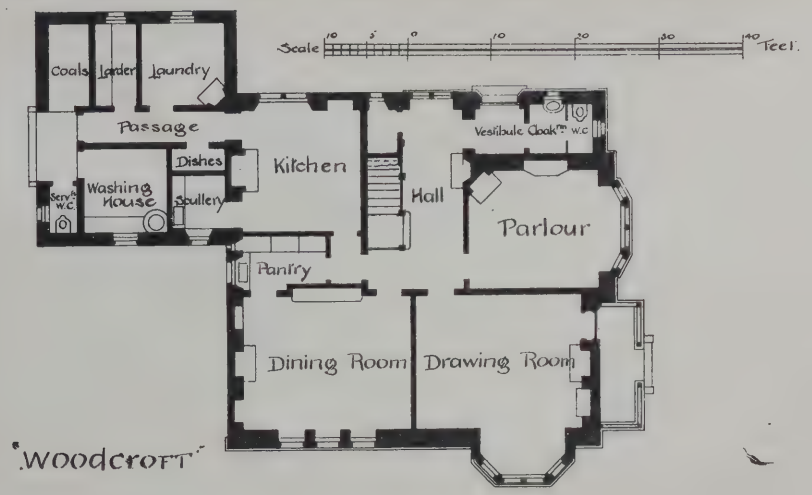
"SONG" BY · T·BROCK·R·A·

·ACADEMY· 1891·

HENRY·A·PEGRAM·



"PHOTO-TINT," by James Akerman, 6, Queen Square, London, W.



"WOODCROFT"

GROUND FLOOR PLAN







FIRST FLOOR PLAN

Photo-Lithographed & Printed by James Akerman, 6, Queen Square, W C

THE BUILDING NEWS
AND ENGINEERING JOURNAL.
VOL. LXI.—No. 1907.
FRIDAY, JULY 24, 1891.

THE LONDON COUNTY COUNCIL.—REVISION OF THE BUILDING ACTS.

THE Annual Report of the London County Council, for the year ending the 31st of March, contains many important matters of interest to the architect and building community, the leading subject being the report of the Building Act Committee on the subject of the revision and consolidation of the Building Acts. But there are a variety of other topics of general interest which form reports of the standing committees of the Council. Sir John Lubbock's address, lately delivered, reviews in a summarised manner the work of the Council, and forms a useful introduction to the report. He glances at the complaint of the alleged increase of the rates, the true increase of which is put down at a halfpenny. This moderate increase is justified if we take into consideration the large expenditure incurred at Barking and Crossness, the addition to parks and open spaces, and increase of fire brigade. At least, it is perhaps some satisfaction to the overtaxed ratepayer to be assured that while in Birmingham the annual expenditure per head of population is £2 16s. 5d., and in Manchester as much as £3 4s. 7d., the expenditure per head in London is only £2 7s. 9d. If we take foreign cities, we find the rate per head much higher, Paris, for instance, being as much as £5 4s. 7d., so that London compares favourably with other English and Continental and American cities. Several Bills have passed through the House of Commons this year—namely, the General Powers Bill, the Overhead Wires Bill, the Sky-Signs Bill; but the work which most concerns us is that of the Building Act Committee. Some idea of the enormous amount of business done by this committee may be gathered by the account which the Chairman of the Council gives. Every week numerous recommendations are made under various Acts of Parliament upon which the Council has to decide. Many hundreds of plans are considered every year, and the returns of the district surveyors amount to often 20,000 in a month. These duties are in addition to the supervision of streets, lines of frontage, naming of streets, dangerous structures, &c. The clauses framed in the London Council General Powers Bill are of general importance and application, though opposed on behalf of the railway and other companies, and by large estate owners.

We will refer *seriatim* to them. Under section 27, provision is made for plans and particulars of buildings being signed by the Chairman of the Building Act Committee or by some other person appointed for that purpose by the Council. Previously to the new Act, every plan had to be signed by the Chairman of the County Council, thus causing unnecessary delay in the transaction of business and the commencement of building operations. Again, by section 28 of the Metropolis Management Amendment Act, 1862, the superintending architect is empowered to determine the general line of buildings in any street in the county, and it had been decided by the House of Lords that there was no appeal from his decision. Under the new Act, any person dissatisfied with the architect's decision in regard to the general line can appeal to a tribunal to be constituted as follows: One member to be appointed by the Council, one member by the council of the Institute of British Architects, and one member by the council of the Surveyors' Institution. We have expressed our opinion on this point on a former occasion. With a clearly-defined rule or by-law, there ought to be no difficulty in the architect of the County Council coming to a satisfactory decision. One danger of allowing an appeal in such a case is that of increasing the number of appellants, and of setting up precedents of a dangerous character. As the decisions in the past have been made on very arbitrary and contradictory principles, however, a properly composed tribunal may be a necessity. But we are strongly of opinion that the Act in this matter should be as rigidly adhered to as possible, so as to prevent any unnecessary relaxation of a rule so desirable to the public. Hitherto, decisions have too often favoured the builder who desires to advance his frontage line. The next section, 29, has been enlarged in its powers. Under the old rule, buildings to be used as warehouses, or for manufacturing purposes, were limited in capacity to 216,000c.ft. without party-walls. Now authority is given to the Council to permit in certain cases, subject to special safeguards against fire, buildings not exceeding 450,000c.ft. without division by party-walls. This extension seems a much larger one than desirable, and the greatest caution ought to be exercised by the authorities in using their discretion.

A very important section (30), which prescribes that every building is to be placed 20ft. from "the centre of the roadway," has been rendered more explicit. Anomalies arose owing to a want of a definition of "centre of roadway," which if complied with on one side was likely to be misconstrued by the builders on the opposite side. For example, if the road was 30ft. wide, the buildings on one side had to be set back 5ft., so as to be 20ft. from the centre, thus making the boundary on one side 20ft., and on the other side 15ft., from the old centre line. The actual centre of road would then be shifted 17½ft. from the boundary on each side, instead of 15ft., as formerly. The owner of land opposite could therefore comply with the law by widening the roadway to an extent of 2½ft. only instead of 5ft., and thus it was unfair to the owner who had first built, and failed to give effect to the Act, which provided that the streets should be at least 40ft. wide. The new section will enable the Council to fix the "centre of roadway" once for all, which will prevent the existing irregularities. Buildings or forecourt boundaries on both sides will thus be made to set back the full 20ft. from the centre.

Section 31 gives increased power to the Council to make by-laws as to (1) the description and qualities of substances used in plastering; (2) the mode in which, and the materials with which any excavation made within 3ft. from the building shall be filled up; and (3) the duties of district surveyors in relation to such plastering or excavation, and their fees in connection therewith. These by-laws we gave in substance some time ago. Section 32 requires the erection of proper hoardings, fences, and platforms before any building within 10ft. of a thoroughfare can be built or taken down.

The next section, 33, deals with a question of great moment—namely, the frontage lines of a building at the corner of two streets. We have often been surprised to find a new corner building in advance of the original line of houses in side streets. The new section enables the Council to control both the main and side frontage of buildings in new streets. The report of the committee says: "This section was considerably weakened by the action of the Royal Institute of British Architects." The restrictions to the exercise of this power have, unfortunately, been favoured by many in the profession. We can imagine a corner building considerably curtailed and robbed of architectural features by observance of the rule here enacted, in which case some discretionary power might be usefully exercised; but these instances are few.

To remove doubt as to the illegality of extending any building so that any part of the external wall of such extension shall come within 20ft. of the centre of a public carriageway, a clause has been introduced in section 34. The next section will prevent streets being laid out not available for through vehicular traffic without consent. Section 36 is one of the most important of the new enactments. No limitation as to height at present exists; but this section, though opposed by some large estate owners, and, strangely enough, by the Institute of British Architects, restricts the height by giving the Council power to prevent the erection of buildings to an excessive height. We cannot understand upon what art or sanitary principle the Institute opposed this very desirable enactment, unless on that of putting as much value as possible on a given plot of land, and so increasing percentage commission on cost. Let us hope not. These are the main sections. Of course Crown and Government buildings are exempt from the Act.

Reverting to section 31, it may be noticed that the by-laws we have previously referred to have been slightly amended. For example, under the description of substances of walls, one important emendation as to walls is made, and reads as follows: "Every wall of a house or building shall have a damp-course composed of materials impervious to moisture, to be approved by the district surveyor, extending throughout its whole thickness, at the level of not less than 6in. below the level of the lowest floor. Every external wall or inclosing wall of habitable rooms or their appurtenances or cellars which abuts against the earth shall be protected by materials impervious to moisture to the satisfaction of the district surveyor." The latter provision is one of the most valuable rules of the by-laws, and will do more to render houses healthy and habitable than any amount of plumber's fittings. Asphalte linings to outer walls of basements will soon become the recognised mode of basement construction. The other revisions are in the direction of permitting any materials of a suitable character, and of giving optional power to the district surveyor to sanction them. These by-laws are now under the Home Secretary's consideration. The regulations approved regarding new appointments of district surveyors include two very important conditions—that a candidate must be 28 years old, and be under 50 years of age; that he will give his whole time to the duties, and not carry on business as an architect, surveyor, or builder, or directly or indirectly as a partner. The formation of streets, lines of frontage, special buildings are subjects of this report. It is ominous of the need of restrictions that as many as 365 applications were made to the Council during the last year for the erection of buildings beyond the general line, and that 184 were granted. In these matters, and those for permission to erect bay windows, balconies, porticoes, and external woodwork, the committee have to use much discretion in consulting both public convenience and safety, and architectural character. Of dangerous structures 2,656 cases have been reported; of underground cellars used as buildings 809 cases are mentioned.

The report of the Committee on Corporate Property and Charities is of considerable length, and we have no space here to discuss it. Next follows the report of the Fire Brigade Committee, which deals with the augmentation of the staff required. Highways, electric lighting Acts, tramways, bars and gates, Victoria Embankment, overhead

wires, &c., are matters dealt with. The Housing of the Working Classes Committee forms another report of interest, to which we have referred briefly. The Improvements Committee report on various improvements for which powers are being sought, as the construction of four bridges and approaches at the Isle of Dogs, the widening of Fortess-road, Kentish Town; the formation of a new street from Evelyn-street to Creek-road, Deptford; the widening of Fulham Palace-road and Queen-street, Hammersmith; the widening of St. George's place, Knightsbridge. These are insignificant works compared with others, such as the formation of a new street from the Strand to Holborn, and the widening of important arteries. As the Council suggest, it is a duty to provide reasonable facilities for the ever-increasing traffic. Neglect in these matters entails a pecuniary loss to the community. The tabular statements of recommended improvements are of interest, and we refer the reader to the report. The Main Drainage question is one of importance. Sir Benjamin Baker and Mr. A. R. Binnie, the chief engineer of the Council, have sent a report which deals with the method of treating sewage adopted, and they draw the conclusion that the most urgent requirements are the prevention of floods due to rainfall, and the cessation of the discharge of crude sewage into the river during periods of small rainfall, and during the first portions of heavier falls. The suggested works comprise new outfall and intercepting sewers on the north side at Old Ford, and a new low-level sewer and branches from Deptford to Crossness, and a new high-level sewer from Dulwich to Crossness on the south side, making a total cost for both sides of £2,220,000. A new outfall is suggested at a point near Shell Haven, in Sea Reach, or the alternative of discharging the whole dry-weather sewage into the sea. But of these proposals we cannot now speak. The condition of the Thames, the complaints of floodings, precipitation, and deodorisation of sewage are topics discussed. The committee recommend the suggestion of the engineers' report as to the works necessary on the north and south side of the river. The Parks and Open Spaces Committee have been doing equally important but more elevating work. Brockwell Park has been acquired and opened informally, the Council contributing £61,000, half the cost of the purchase. We are glad that the committee do not contemplate making it a gentleman's garden, but intend to leave it in its present park-like state as much as possible. Dulwich Park has cost £36,000 to lay out, its area being only 72 acres; the process has spoiled the park and benefited the gardeners at the cost of the public, who have lost the rural beauty and freedom of an open space. Other places acquired during the year are a portion of Parliament Hill, Victoria Park Cemetery, Telegraph Hill, Hatcham; Peckham Rye (extension), Bostall Woods, besides several disused burial-grounds and churchyards. Attention has also been directed to various spaces which it would be desirable to acquire, some of them adjoining commons. The work of laying out has been considerable, and has entailed expense, and in this direction it is easy to do too much. The arrangements for games and pastimes, like cricket, skating, golf, lawn tennis, have added to the duties of the committee. The Strand Improvements Bill we have already described; other Bills have been promoted of considerable public importance, to which we cannot here allude. Reports of the Sanitary and Special Purposes, of the Theatres and Music Halls, of the Contracts, and other committees are of interest. The special committee on contracts report that, after hearing representatives of various trades, they thought the clause relating to sub-letting in the Council's contracts was stringent enough to protect the workmen employed, the wages and hours of labour being those accepted as fair in the trade. Sub-contracting was unavoidable in some instances, and the committee suggested, in order to meet such cases, the following words should be added to the clause:—"But the Council retains power to allow the contractor to sub-let such special portions of the work as would not be produced or carried out by him in the ordinary course of his business." The Council also agreed that "all work of a continuous nature which does not involve a large outlay for plant, &c., such as the cleansing and watching of bridges, embankments, &c., under the control of the Council, be executed as far as possible by men directly employed by the Council, without the intervention of a contractor." This recommendation concedes largely the request made by trades' representatives that the Council should do its own work without the employment of a contractor—a principle that cannot fail to give general satisfaction.

PUBLIC LIBRARY OF ST. GEORGE, HANOVER-SQUARE.

THE competition designs received for the public library for the parish of St. George, Hanover-square, which were on view last week at the Vestry Hall, Pimlico-road, are on the whole very creditable to their authors, who have carefully studied the conditions. The site which forms a parallelogram between Buckingham Palace-road and Eccleston-place, with frontages to each of these thoroughfares, is a plot about 120ft. deep by 80ft. wide, and necessitated some consideration in planning the departments. One of the requirements was a museum on the first floor, and there were to be rooms provided for the librarian in the upper story. These conditions made it necessary to consider the question of lighting, and to make as much use as possible of both side and top lights. The design, "Utility" (by Mr. A. J. Bolton), selected by the committee is compact, and the entire area has been utilised. From Buckingham Palace-road, a central entrance gives access to a long news-room of 2,000sq.ft. on the right-hand side, lighted in front, and also by a skylight in the rear. On the left is a ladies' reading-room of 414sq.ft., beyond which is the main staircase to museum from the hall. Fronting the latter is the librarian's office, with glazed bay, having a full view of the entrance, and also the doors to lending library, of 2,000sq.ft., which occupies the remainder of the left side, having windows facing Eccleston-place and top-lighted. The reference library is on the other side, behind news-room, and top lighted, and has 1,400sq.ft. Between these rooms the author has a passage to Eccleston-place with an entrance porch, which he suggests as an early workmen's room. One good feature is the central position of the librarian's office, which commands all three of the rooms besides the entrance. But the turning into the borrower's lobby of lending library is awkward, and the ingress and egress objectionable as it is shown. The roof over lending library has circular iron ribs, with side roof lights. The reference library has two tiers of bookcases and gallery, and is lighted by a domical lantern; it has a circular stair lift and counter near librarian's office. On the first floor, fronting Buckingham Palace-road, is the museum, of rather square proportions, partly over news-room. On the second floor is the librarian's rooms, and in the basement are early morning rooms, stores, and heating apparatus. The principal front elevation, in a Renaissance style, is somewhat elaborate, and we prefer the plainer treatment. Towards Eccleston-place is a low, one-story elevation.

In its utilisation of the whole area of site, the design with motto "Lintol" has a somewhat similar plan. The news-room, 54ft. by 37ft., is placed with its end to the main road, on the right-hand side of entrance partly lighted by front windows, and partly by a skylight in the rear of the superimposed museum. Behind the news-room is the lending library, 47ft. 6in. by 43ft., with lobby on two sides for borrowers, lighted from Eccleston-place and also by an octangular lantern. On the left of entrance corridor is the ladies' room in front; then follow the staircase, an area for light, and next to it the librarian's office, with counter projecting into the reference library behind. The latter is 46ft. by 33ft. 3in., and has a glazed lantern over, besides windows to Eccleston-place. The librarian can overlook reference library and hall. The lobby for borrowers is divided by a rail, so that they can go in to receive or return books and pass out without jostling against those entering. We do not like the high octagonal roof and treatment of lending library. The museum is made a feature above, and has a coved timber roof. The elevation is in a sort of Early Renaissance, and Gothic in feeling. Next we come to a design worked out with much skill and taste under the motto, "St. George" (by Mr. I'Anson); the front elevation is in a Renaissance style, with three large arched windows to lending library, which in this plan is placed in front to the left of a side entrance hall. The advantage of this position is obvious, inasmuch as the borrowers can pass into the lobby directly they enter, and leave without the inconvenience of having to pass through the building or by other rooms. The lending library has an area of 2,000sq.ft., and is lighted by three front windows, and also by a skylight which runs along the inner side of room beyond the wall of museum over. The reference library behind, of 1,000sq.ft., has a light area on the left side, and adjoining it on the right are the librarian's and assistants' rooms, access to which is obtained by a side corridor in a line with entrance hall. This corridor is also lighted with a side area, and gives access also to the news-room facing Eccleston-place (2,000sq.ft.), and a ladies' room. The three rooms intercommunicate by doors. The two side areas are important points in the plan. The main side corridor is well lighted by it, and skylights are introduced over the news-room and reference library. The museum and committee-room are in front on the first floor, and the librarian has his rooms on the second floor; an early workmen's room is in the basement. High-pitched roofs are shown over reference library and news-room, with centre lanterns. The librarian is well placed for supervision, and the plan carefully distributed in its main lines. Another plan, under "St. George" on a shield, we believe, by Mr. E. W. Mountford, places the news-room along the main front, 64ft. 6in. by 30ft. 9in., with entrance on left side. An inner hall, lighted by a circular lantern, has the borrowers' lobby on the right-hand side, projecting into the lending library, which is 50ft. by 39ft., the outer wall of which is set back with area along this side are windows above bookshelves. There is also a domical lantern over. A short corridor from the hall leads to the ladies' room, the librarian's office, and the reference library, 40ft. by 26ft., in the rear facing Eccleston-place, with a side book store. On the first floor is the museum and committee-room in front, book store and librarian's rooms facing Eccleston-place. In the basement are a book store under lending library, and caretaker's rooms in front. The elevation towards Buckingham Palace road is in a quiet 17th-century style of brick and stone, drawn with considerable taste and feeling. Three segmental pediment of slight projection relieve the front; the parapet is straight and unbroken, and a high roof, broken by a flèche, is shown. The drawings are clever and well detailed, and

the drainage is shown. Another able design—that of "Ευρηκα"—bears the impress of Mr. Brydon's work, both in plan and elevation. The former has a strong resemblance to the Chelsea public library, the latter is a dignified 18th-century façade of brick, with an order of pilasters and rusticated stone dressings round windows, and a centre pavilion roof. The news-room and lending library are parallel, their ends towards Eccleston-place, and they leave side areas for windows. The reference library and ladies' room are in front on each side of entrance; the librarian's office is on the first floor. The plan of this floor has the museum in front, and a book store top-lighted over half of the lending library, the outer wall of the store being set back on iron columns in the latter. The news room is divided into three compartments by columns and coved ceilings with ventilating flues, and a flat span roof is shown over the whole back building. The Eccleston-place elevation is rather poor. "Dragon" is a clever set of plans; the lending library in front, reference library in centre, and news room behind, all transversely placed, the two former being separated by an area for light. Between the reference library and news-room is a glazed partition, and the apartments are well lighted. The librarian's office is not central; the elevation is Renaissance in style.

The merits of the plans submitted are so nearly balanced that it is a pity the committee should not have appointed a competent assessor to report upon them. The question of side-lighting by areas is important. Three authors have adopted the side area in addition to top light; the others have utilised the whole area of site by introducing skylights and lanterns. One desirable point—easy access to the lending department—has been considered by "St. George" and "Ευρηκα," who plan the borrowers' lobby close to or opposite the entrance. The advantage of having it within a short distance of the entrance, so as to avoid unnecessary traffic through the corridor or hall, is obvious. But if the lending library is near the front, the news-room ought, if possible, to be so too, as being more frequently visited than the other departments. The early-workmen's room is now almost an essential, and the authors have shown it in the basement, as provided by the conditions. How to light the main rooms and corridors in the most economical manner, having regard to the roofing of the departments and the two-storied portions of the building, is one of the main questions which the architects had to answer.

HOT-WATER ENGINEERING.—VII.

Supply of Hot Water for Baths and Domestic Purposes.

the cylinder system (*continued*).

FROM Fig. 19, which is reproduced here as the description has not been completed, it will be seen that the flow-and-return service is connected at the boiler in precisely the same manner as with the tank system, and, in fact, this portion of the work does not differ in any description of apparatus erected for this purpose. From the boiler it is connected into the side of the cylinder at the points shown, the return pipe being situated about 3in. from the bottom, and the flow pipe about 5in. above that; but it is customary and proper to continue the flow-pipe inside the cylinder, letting it stand up, reaching about half-way to the top, as Fig. 21. If the cylinder has no man-lid or removable top, then the flow flange should be situated half-way up, as Fig. 22.

The object of terminating the flow-pipe this much higher than the return is to carry the heated water from the boiler to the top of the cylinder, where all draw-off services are taken from. If we just terminated the flow low down in the side of the cylinder, as Fig. 19, all the heated water which passed up it would have to pass through a considerable body of cool or cold water before it could reach the draw-off service at top, and although no objection could be raised if the cylinder was full of hot water, it is rare that it contains hot water from top to bottom, as for every drop of water that issues from the taps,

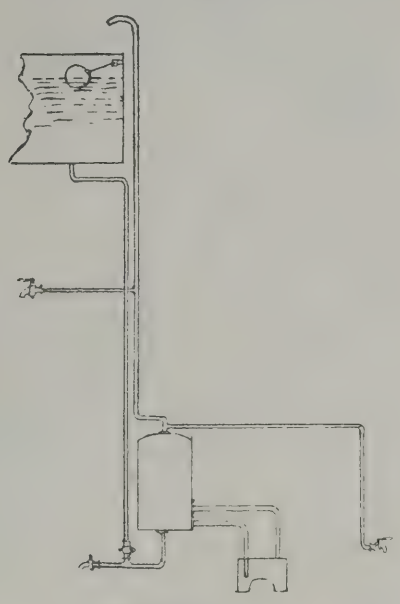


FIG 19.

a corresponding quantity instantly flows into the bottom of the cylinder from the cold-water cistern. The flow-pipe from the boiler should terminate in the cylinder about half-way up: a trifle higher would be no disadvantage. The flow and return pipes are never carried in through the bottom of a cylinder, as they can usually be carried in through the side conveniently, which has the important advantage of saving one bend in each pipe. Bends, as explained, are objectionable in the circulating pipes near the boiler, as being collecting points for lime deposit if the water be hard.

From the extreme top of the cylinder is carried a pipe which terminates above the level of the cold-water cistern, either turning over the cistern as shown, or being carried through the

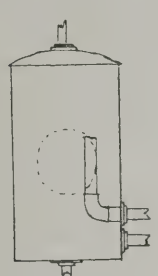


FIG 21

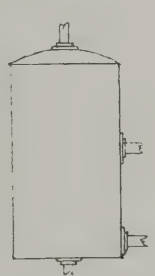


FIG 22

roof or outer wall. Wherever it is terminated, it must not be forgotten that hot water will most probably be ejected from it if the apparatus overheats—that is, if the boiler is fully powerful for the work. This pipe bears several names, but is usually recognised as the "rising main," and all draw-off services are taken from it. When this pipe is returned, as will be described directly, it can then be reasonably described as the secondary flow and return. It is very necessary to see that this rising main service does not project inside the cylinder in the least degree; if it does, an air-chamber will be formed, which will be a perpetual source of annoyance, and be a demonstrative evidence of careless workmanship.

The cold supply is brought down by a direct service from the house cistern to the cylinder, entering the bottom with the necessary dip, as shown, and with a stop-cock at the point indicated. There is a particular advantage in having the stop-cock at this point, as when the boiler needs cleaning out, or other attention, and has to be emptied, the water can be shut off and afterwards turned on without the man leaving the kitchen probably, whereas if the cock was placed up near the cold cistern, it would necessitate the workmen traversing the house from bottom to top twice, at least. It is very important that the stop-cock have a full way through it, that is a 1in. cock should have a clear bore through it of 1in. diameter when it is turned on, otherwise it follows as a matter of course, that a check to the inflow of cold water will be experienced, which must necessarily be a check to the outflow of hot water at the taps. The water will not flow out of the apparatus faster than it flows in; in fact, it is always slower, more or less, as the water experiences a resistance by friction in its passage through the ramification of pipes.

The stop-cock must also have a loose key that should be kept by a responsible person, and it should only be intrusted to responsible workmen, although, in this apparatus, a stoppage of water supply would not be the element of danger it would be in the tank system, for in the cylinder system the hot-water reservoir cannot be emptied unknowingly.

An essential feature in this system is a draw-off service connected at some point below the cylinder, expressly for emptying purposes. It will be seen that, as no ordinary draw-off services are taken from any point below the top of the reservoir, it becomes almost impossible to empty it, when it is necessary to clean the boiler or do anything which requires the withdrawal of all the water in the apparatus. If the special emptying service is not provided, then the water can only be got out by loosening the boiler manlid, and permitting it to flow into the kitchen—a most objectionable resource, but nevertheless of frequent occurrence, as the service under discussion is very commonly forgotten.

Sometimes a fitter will, instead of providing an emptying service, introduce a stop-cock into each of the pipes, between the cylinder and boiler, so that when the boiler has to be opened the cocks are shut off, and, by so doing, the necessity of emptying the cylinder is avoided. This is one of the worst of practices on account of the danger it creates. It is only a short time ago that a practical man—a plumber—lost his life by this cause; he having forgotten to open the stop-cocks when the boiler lid was secured after cleaning it. Shortly after he had lighted the fire to test and see that all was correct, the boiler burst. A slight moisture in the boiler would permit of sufficient steam being generated to effect this.

The emptying service can be connected at any point under the cylinder, not forgetting that the water drawn from it has to be carried away in a pail, so that it should be at a convenient height and position for this purpose. If it were possible to terminate it over a sink or gully, it would prove particularly convenient. The cold supply pipe is a favourite point for connecting this service to; but, of course, it must be on the cylinder side of the stop-cock, as shown. This, however, still leaves a little water in the pipes to flow out from the boiler. To quite empty the boiler as well, the service would have to be taken from the boiler itself, and either brought through the jamb or through the back wall. It is very necessary that this tap have a loose key, which should be kept in a responsible person's charge, together with the key of the stop-cock. This is important, as if the tap is used in the ordinary way, the chief and most valuable feature—the safety—of the system is disposed of, as it would permit of the cylinder being emptied unknowingly, should there be a failure in water supply.

The advantages of the cylinder system consist, firstly, in the fact that a shortness of water is not an element of danger, as there is no means of emptying the cylinder and boiler (except by the special emptying service); consequently an explosion or a fracture to the boiler cannot be brought about by this cause, as it would take a fairly long time to boil and evaporate 50 or 60 gallons of water away. The importance of this advantage cannot be over-estimated. In the long frost that occurred last winter, and which interrupted the water supply so seriously, the cylinder system undoubtedly saved many boilers, as well as permitting kitchen ranges being used under circumstances that would have been highly dangerous with the tank system.

This advantage is more greatly appreciated in country residences where the water supply is commonly most uncertain, an odd man's attention to a pump being the only means by which

the house cistern is kept supplied. Sometimes the pumping is done by wind power or by a caloric engine; but in any case it is the regular thing for the water to run short occasionally at unexpected times, unless the house is supplied from a town's mains.

A second and equally important advantage of the cylinder system over the tank apparatus is the nearness of the reservoir to the boiler. Of course, the chief object aimed at in the erection of an apparatus is to arrange for the reservoir to be filled with hot water in the shortest possible time. The quicker we can obtain a store of hot water the better pleased the user of the apparatus is, although, as before mentioned, the rest of the erection must be carried out so that the hot water can readily be withdrawn without admixture of cold or reduction of temperature. Now the difference in period of time between the heating up of a cylinder down by the boiler and a tank up at the top of a house is very great (other circumstances being equal). The distance which the water has to go, of course, materially affects the time in which the reservoir water becomes hot; but, apart from this, the long circulating pipes of the tank system, extending through passages, up casings, and in all sorts of more or less cold situations, get robbed of heat to a most material extent, unless they have been well covered with felt. Although felting pipes is a most desirable thing, and will be spoken of more fully presently, it is seldom done. The method for carrying out the cylinder system for larger works will be treated in the next paper.

THE "HISTORY OF THE HABITATIONS OF MAN."

By Banister Fletcher, Jun.

(*Continued from page* 67.)

THE "Soudan House" (167) is relatively modern, earlier information not existing, and has been built from indications received from various travellers of our own day. It was in the 11th century that the Mohammedan religion penetrated into the Soudan; but it is not supposed that even this invasion could have influenced much the type of dwellings necessitated by the exigencies of the climate. The sketch



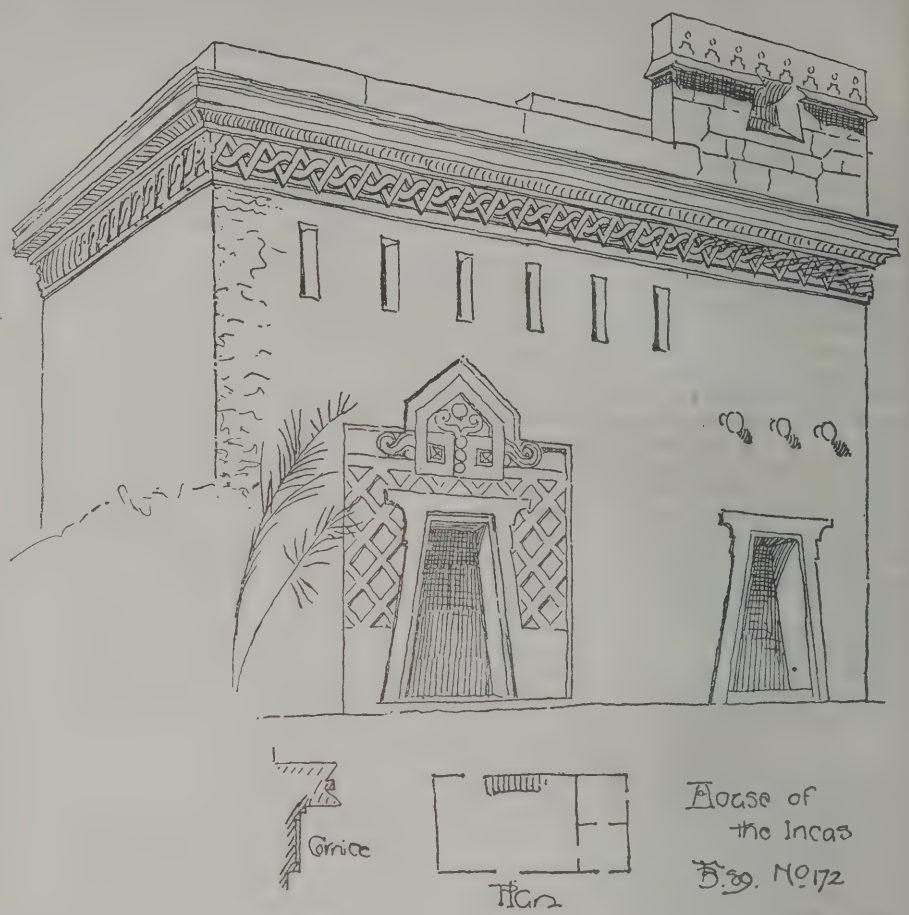
shows the type of building constructed by Charles Garnier. It is characterised principally by few and small openings to keep out the intense heat, and is crowned by a peculiar type of battlemented parapet.

This finishes the second part of the historic period into which M. Garnier has divided the "Histoire," and brings us to the third section, which is the *Civilisation contemporary with Primitive Civilisations* (*section* 1 *of Historic Period*), but which held itself entirely aloof from it, and exercised no influence on the general march of mankind. This has been divided into three principal parts:—

1. The yellow races: Chinese, Japanese, Esquimaux.
2. Negro races: Central Africans.
3. Indigenous populations of America: Red Indians, Incas, and Aztecs.

We will now, therefore, proceed to examine their dwellings.

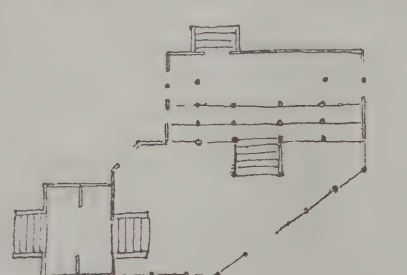
The Japanese and Chinese Houses (168) have been erected from numerous treatises on the subject, and M. Garnier has endeavoured, by marking the Japanese house with refinement,



and the Chinese with a feeling slightly vulgar and common, to distinguish between the two, which in their *tout-ensemble* resemble one another somewhat closely.

The date of the Japanese house is taken at the time when the first European navigators landed there in 1542.

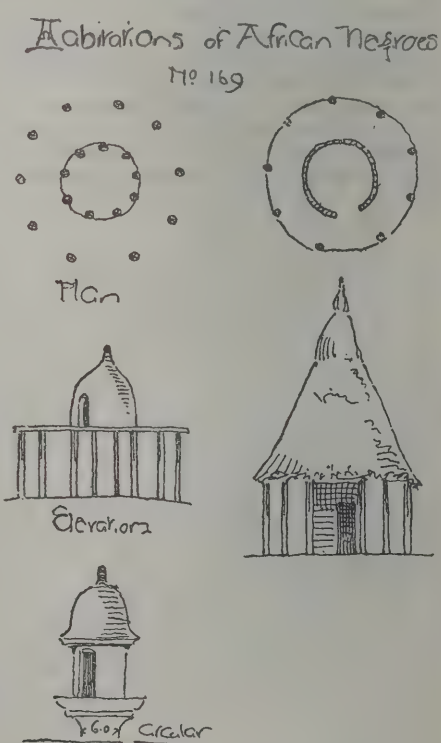
Habitations of the Esquimaux and Laplanders are represented by two huts—a summer and a





winter one. The summer hut is composed of skins of seal and reindeer, the winter hut being formed of large blocks of ice, the entrance being effected by crawling under an opening. These were the Esquimaux dwellings when, in the 10th century, the Scandinavians first came into communication with them.

The Negro races of Central Africa are represented by three types, sketches of which I give (No. 169). The first one is taken from Egyptian painting 1500 B.C., relating to the exploits of Rameses II. (Sesostris). Explorers of Central Africa in the present century have also described huts exactly similar. These huts are built of wood and straw, and are covered with mud, are small, and in a circular form, the absence of a

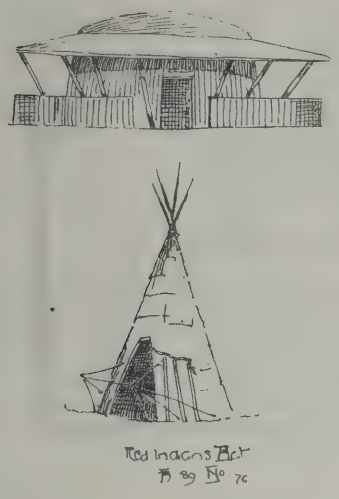


strong inclosure often causing them to be raised on piles, by which they are ascended by something in the form of a ladder. These evidently are an attempt to get out of the way of vermin, or perhaps water in flood time.

The Red Indians, or indigenous people of America (now disappeared), are represented by

three tents (No. 170) formed of skin and wood framing, and give us a sample of the habitations of the savage North American tribes at the time when Christopher Columbus discovered the New World in the end of the 15th century.

The House of the Aztecs of Mexico (171) consists of one large room, and has a peculiar gable, the outline of which is formed nowadays by a mansard roof. The sloping roof covering is performed by stepping courses of stonework, on which rests terra-cotta vases, &c. Above the sloping part is a flat roof. The building is massively constructed in stone, and recalls to a certain extent—as, for example, the reeded ornament to the walls—the distinctive features of the Assyrian habitation at the other end of the Quai d'Orsay, only here we have it in stone. It



seems obviously to have descended from timber construction.

The Habitation of the Incas (No. 172).—The Incas were the ancient inhabitants of Peru; they were conquered by Pizarro in the beginning of the 16th century. It is a massively built construction in stone and plaster, with narrow openings, and a flat roof and doorways with sloping jambs, as in the Egpytian building at the commencement of the "Histoire," which it



resembles in its massive construction and heavy cornice, the entablature in this case containing a sculpture frieze with ornament in low relief. In the architrave to the principal doors is also the characteristics cavetto of the Egyptian buildings.

Although, without the explanation given at the commencement of these notes of the sequence adopted by M. Garnier in his distribution of the "Histoire," the models of the Habitations may appear placed without any special order or reason, it will be seen that the buildings have been grouped by M. Garnier according to a table prepared, and which renders it perfectly intelligible. The buildings are mostly constructed in brick nog walling and plaster of Paris, and the details are worked with an extraordinary amount of care, considering that it is only a temporary exhibition; and M. Garnier must be congratulated on the fact of his being the first architect ever called upon to present to the public, by means of in some instances natural-size models, showing in a fairly thorough way the history and character of the dwellings of the peoples of the earth from pre-historic times up to the present day. That it is, in many cases, incomplete is of course only natural, considering the want of time, space, and money at M. Garnier's disposal; but with all these impediments, that it could have been better done, is not likely, and it may be said to give a very good idea indeed of the dwellings of all times.

ARCHITECTURAL ASSOCIATION EXCURSION PROGRAMME.

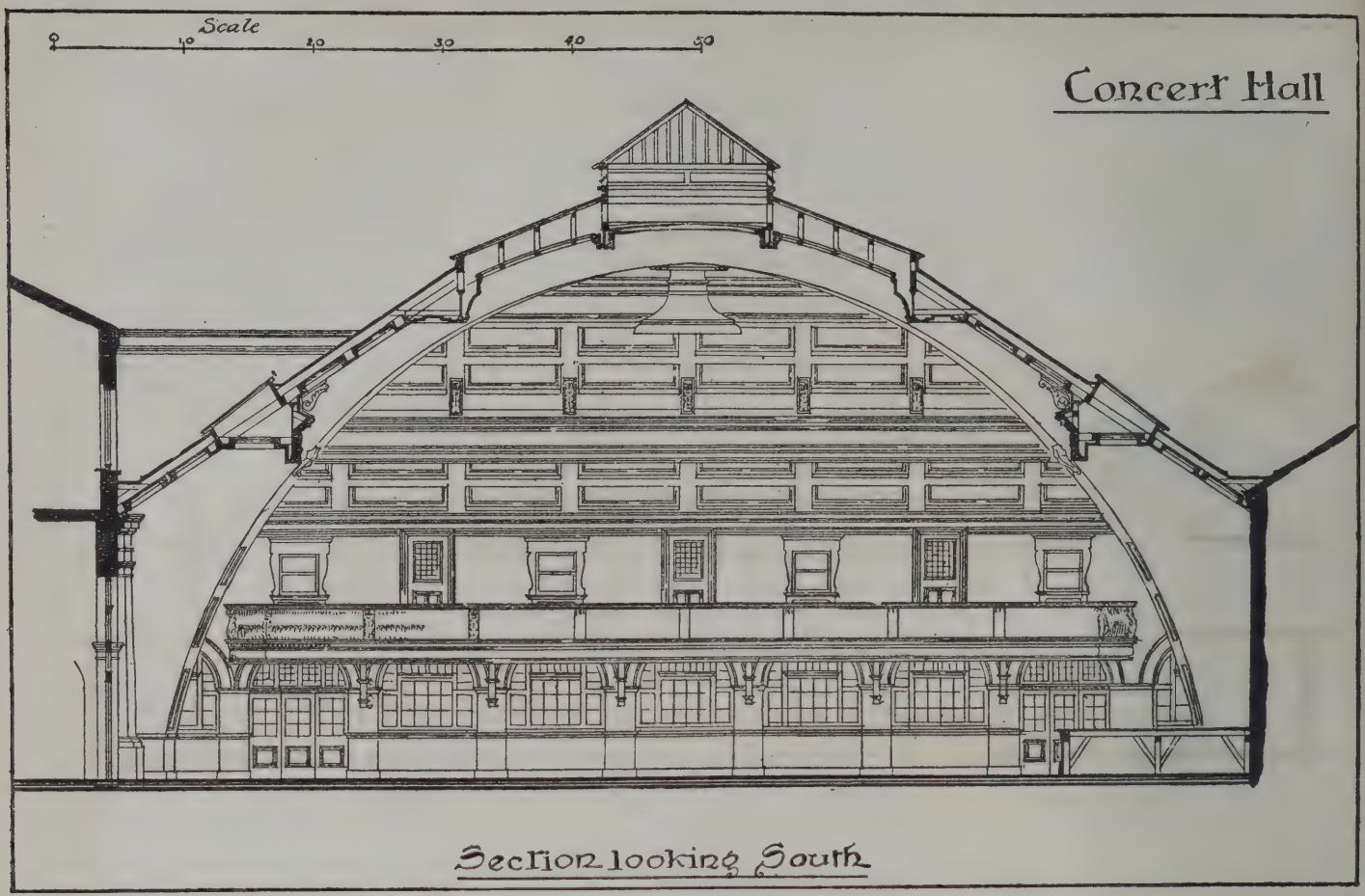
THE following is the provisional list of places to be visited from Shrewsbury as headquarters by the excursion members of the Architectural Association during the week commencing August 10th:—*Monday*: Wroxeter, where the Norman church with fine 16th century altar tombs will be seen, and the remains of Ur-i-Conium, founded in the reign of Trajan, will be passed near the site of Watling-street-road on the way to Buildwas Abbey, where the beautiful ruins of one of the finest Cistercian churches in the West of England will well repay a visit. Benthall Hall (originally Benethall), erected in 1535, the next halting place, is a gabled house with lofty chimneys, and the day is to conclude with Much Wenlock, seeing the picturesque gatehouse, the beautiful 13th-century Priory church remains, and the justly celebrated Prior's house, still perfect. *Tuesday* is to open with Plaish (Plash or Plush) Hall, which is said to resemble the famous house at Compton Wyneates, in Warwickshire. Plaish Hall is a good Tudor brick-built house, with a fine hall and very rich Elizabethan chimneys. The remainder of the day is to be devoted to Shipton Hall, erected in the middle of the 16th century. It has a tower quaintly grouped midst three gables on the garden side, and a very fine hall within. *Wednesday's* programme commences at Albright Hussey, an ancient moated mansion, dated on the entrance-porch 1524. The house is partly half-timbered, with additions made about the year 1560 in stone. Battlefield Collegiate Church follows. Shawbury is down next, and then the magnificent ruin of the Renaissance mansion at Morton Corbet. Haughmond Abbey, also a ruin of eminent picturesqueness, is to follow, chiefly remarkable for its monastic remains, and the day is set down to conclude with Lundorn. *Thursday* will be well occupied with Stokesay Castle and Ludlow. *Friday's* work is to begin at Pitchford Hall, a many-gabled, big timber house forming three sides of a court, and having very handsome chimneys. Acton Burnell Castle, with its four stone-built towers, is all that remains of another ancient country seat of somewhat later date than Stokesay, with Geometrical tracery to the windows, and very similar to the Palace at Wells, which was also erected by Bishop Burnell. It is now used as stable buildings. The fine Elizabethan mansion at Condover, the Hall of the Owens, some three miles south of Shrewsbury, concludes the day. *Saturday* will be occupied by examining the glories of Shrewsbury itself, the Renaissance market house and grammar school; St. Mary's celebrated church; "Whitehall" in the Abbey Foregate, with its Gate, Lodge, and Pigeon-house; the Abbey Church, and the several old timbered houses about the town. This brief outline of the proposed proceedings sufficiently indicates the attractions in store for those who will take part in the excursion this year.

OVER-CHARGED SEWERS.

THE danger attending sewers over-charged with storm-water has been pointed out very often. The Select Committee of the House of Commons which has been inquiring into the ventilation of the House has again brought the question before the public. The sewers in Westminster, like most of those in London and elsewhere, carry off not only the sewage but the rainfall and storm water. But there was the possibility, as Mr. Binnie pointed out, of the sewer being full of sewer gas, that when storms occurred and displaced the gas, the latter would escape, either into the streets through the iron gratings, or into the houses by the bursting of traps. Major Tulloch and Sir Joseph Bazalgette had reported to this effect in 1885, and the latter proposed that the sewer should be abolished and a pipe sewer substituted. With the stopping up of the street ventilators there is a danger of the gas accumulating in the sewers, and escaping through the traps of houses; but where the ventilators are kept open, and pipes are also carried up the houses, good ventilation is insured. Mr. Binnie recommended a ventilating-pipe carried up the side of the Clock Tower. The question of storm-water conveyance is one that will have to be dealt with in London before long. The sewers, especially the low-level sewers, are getting every year too small in capacity to carry away both the sewage and the storm-water. The only remedy is to divert the rainfall into separate conduits, or to enlarge the sewers. The floodings in the Metropolis of late have been considerable. The storm on the 17th of July is estimated at 2in. of rainfall—on some areas 1in. fell within an hour. The Main Drainage Committee have, we believe, been discussing the necessity of providing additional outfalls—a new outfall sewer is contemplated between Old Ford and Barking. The great evil, as we have pointed out, is the very low basements allowed in some districts. These should never be lower than the levels of the sewers; but thousands of houses in London have their basements below. The London County Council have decided to apply for powers to enable them to prevent this state of things, and to make it unlawful to erect any dwelling upon land of which the surface is below the level of Trinity high-water mark, or which is subject to flooding. Better late than never; but we wonder why the old Board allowed this condition to remain so long. The sewers in the Metropolis are subjected to great pressure at periods of heavy rainfall; the consequence is that the traps are rendered powerless to prevent the escape of gas and the flooding of basements. Ventilators in the form of pipes carried up the sides of lofty buildings will avert the danger of sewer-gas escaping into houses, and, to a certain extent, of the bursting of traps and flooding. It is one of the remedies which ought to be generally adopted, especially in those parts were outfalls cannot be made. We hope the committee intrusted with this work will lose no time in obtaining Parliamentary powers to deal with the question, and that no objections of a trivial character will be permitted to obstruct such a necessary measure.

THE GOLDSMITHS' COMPANY'S TECHNICAL AND RECREATIVE INSTITUTE, NEW CROSS, S.E.

THE Prince and Princess of Wales opened these buildings on Wednesday, and we give the plans of the two principal floors with details of the great hall to-day. The site comprises the buildings and land recently occupied as the well-known Royal Naval School, the foundation stone of which was laid by the late Prince Consort on "the glorious 1st of June," 1843. On the removal of the school to country quarters, the Goldsmiths' Company purchased the building and about seven acres of land, and with considerable re-arrangements and additions have adapted them to the present purposes under the direction of Mr. J. Wornum Penfold, architect, the surveyor to the Goldsmiths' Company. The old buildings formed the four sides of a quadrangle, or open space, of nearly 100ft. square, and with their numerous classrooms, large dormitories, and general schoolroom, lent themselves better than could have been expected to the change of circumstances. The front of the main building is retired on rising ground from the Lewisham high road, giving space for a garden with carriage approach to the main entrance and footways to the separate departments for men and women. In general terms it may be said that the men's classrooms, the workshops, &c., occupy the right or northern wing, and the women's department the left or southern. On the ground and mezzanine floors of the main front are the rooms of the resident secretary, Mr. J. S. Redmayne, the administrative offices and bookstall, at which students can purchase their classbooks and other requisites at moderate prices. The first or principal floor is devoted to library and reading and news rooms, 100ft. by 28ft., approached by separate staircases from the men's and women's departments. Additional book-stores are arranged in the mezzanine below, communicating direct with the library. The northern wing is occupied on the ground floor by the refreshment room, 90ft. by

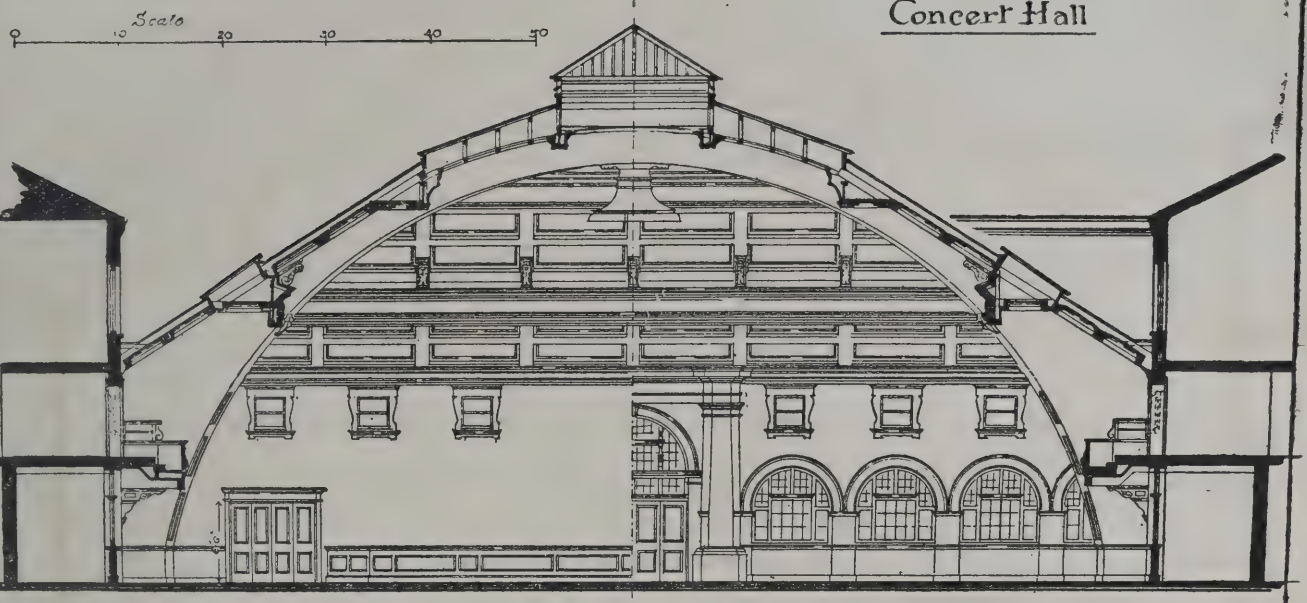


GOLDSMITHS' COMPANY'S TECHNICAL INSTITUTE, NEW CROSS.

24ft., served by new and carefully arranged kitchens, with their necessary adjuncts. Beyond this, and in proximity to the gymnasium and workshops, are the men's lavatories, with hot and cold water, locker rooms, men's club-rooms, &c. In the mezzanine over these are the clay-modelling rooms, and other smaller rooms for the use of some of the masters, and for chess and other games. On the lofty first floor is the men's social room, 50ft. by 35ft., and, approached by separate staircases, the art class rooms, having a total extent of about 200ft. by 35ft., divided into elementary and advanced drawing, life study, dressing-rooms for the models, lavatories, cloakrooms, &c. Approached from the ground floor of this wing are the engineers' workshops, 70ft. by 30ft., and large electrical laboratory, all fitted with the best appliances. Adjoining the engineers' shops is the engine which drives the whole of the machinery and the pumps, drawing water from a deep well sunk into the chalk for the general supply of the establishment, and for filling the swimming-bath. Here are also the boilers, which supply steam for the engine, for the general warming of the buildings, and for heating the water of the swimming-bath. In a block near to the engineers' shop, and having its machinery connected with the main driving shaft, is the carpenters' shop, with large class or lecture room over, also several smaller rooms destined for type-writing, commercial classes, and such of the less important branches of trade as it may be found necessary to accommodate. The south wing, or women's side, contains, on the ground floor, class-rooms for needlework, cookery, and general instruction, women's lavatory, cloak-rooms, &c.; also a large class-room, to be used chiefly for physical or other scientific demonstration. In the mezzanine are several private rooms and rooms for games, for small classes, or meetings. On the first floor is the women's social room, 40ft. by 35ft., the chemical department, about 150ft. by 35ft.: adjoining is the balance room, chemical lecture room for 70 or 80 students, demonstrators' preparation room, &c. Above this are the photographic studio, dark room, &c. In connection with the technical department must also be mentioned the old school chapel, capable of seating some 500 people. It is detached from the other buildings, and can be also approached from the public road should it be found desirable at any time to admit other than members. It has been deconsecrated by special Act of Parliament, an additional room has been added, and it is intended to be used as a general lecture hall, and for lantern exhibitions, or for large musical classes, as occasion may arise. In the recreative department is the large concert hall, which occupies the site of the central quadrangle before mentioned. It is 98ft. by 88ft., and is approached in connection with the principal entrance. As it was necessary to preserve the light and air for the upper story of the buildings round the quadrangle, and the existing walls were not of sufficient strength to carry a roof of so great a span, a special and somewhat novel method of construction has been cleverly adopted. Curved lattice ribs of great depth, bolted down to special foundations, spring direct from the floor level in the four corners of the hall. Uniting at the apex about 40ft. in height, these form two diagonal arches of 125ft. span, leaving the whole surface of the floor free and uninterrupted by columns or other supports. Lattice girders or purlins of 68ft. span, 25ft. from the floor, with others of less dimensions carry the rafters and covering of the roof. The hall is well lighted from the roof at the junction of the main ribs, and by a series of skylights at a lower level. The platform and galleries for chorus are on the western side of the hall, and a fine organ is in course of construction by Messrs. Abbott and Smith, of Leeds, at a cost of some £2,000. The floor of the hall will seat about 1,300 people, according to County Council requirements, besides performers and chorus of about 100 persons. On the mezzanine level are galleries to hold 200 to 250 with independent staircases. Care has been taken to provide sufficient exit in case of panic among the audience. There is a spacious corridor on all sides of the hall, and besides the main entrance doors on the western side, which are 10ft. in width, there are two of 7ft. in each of the other sides, with corresponding doors in the outside walls of the building, giving on to the open ground. The galleries are approached by similar corridors on the mezzanine floor, and special external escape stairs lead from each to the grounds outside the building. The details which we show in our plans and sections explain the construction of this great hall. Immediately at the back of the great hall is the gymnasium, about 100ft. by 38ft., which has been adapted and enlarged from the old Royal Naval school-room. On one side of this is a gallery from which spectators can watch the special gymnastic displays which will take place from time to time. Here also will be fixed the motors for supplying air to the organ. To the north-west of the principal buildings, and connected therewith by corridors is the new swimming-bath, 90ft. by 50ft., the pond itself being 80ft. by 30ft., with a capacity of about 80,000 gallons. The bath is supplied from the well, the West Kent Water Company's mains being also connected for use in case of need. From the well the water passes through a heater, and is discharged into the bath as a cascade. By means of a centrifugal pump a continuous circulation is kept up, water being abstracted from the bath, passed through the heater, and returned by the cascade at the rate of some 6,000 or 7,000 gallons per hour, with any fresh water required to make up for loss while the bath is in use; a uniform temperature of about 72° is thus retained. On each side are a number of dressing-boxes, over which are galleries for spectators. There is a separate entrance to this bath from the public road, so that it may be available by arrangement for schools, outside clubs, or such of the public as may be admitted on specified conditions. The old school swimming-bath will probably be made available for private hot and cold baths, should there be a demand for them. Extending along the back of the building is a large paved court of about 2,000 square yards, which will be available for various games, drill, and general exercise in the winter. Beyond this is the recreation ground, about 4½ acres in extent. At considerable cost this has been levelled, and a good running track laid out of about four laps to the mile. Inside the track is space for cricket, tennis, or football. The cost of the various alterations, about £70,000, has been paid by the Goldsmiths' Company. Mr. Thomas Lee acted as clerk of the works, under the direction of the architect. Messrs. Kirk and Randall, of Woolwich, are the general contractors.

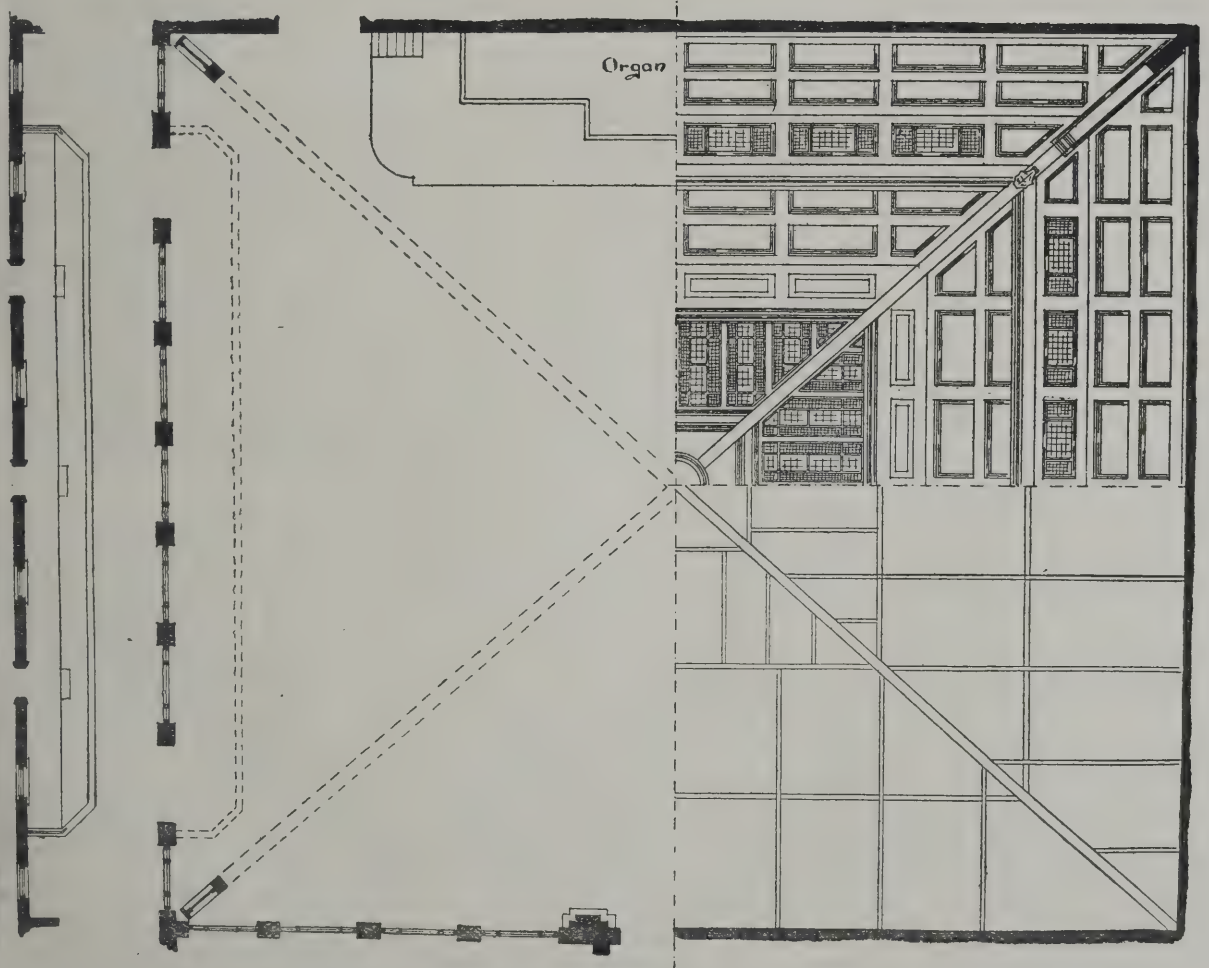
Goldsmiths' Company's Institute
New Cross

Concert Hall



Half Section towards Gymnasium

Half Section looking towards Entrance



¼ Plan looking up

Gallery Plan

Half Ground Plan

Half Ceiling Plan

¼ Plan of iron Construction

J·W·Penfold Archt

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Our Illustrations.

THE VICTORIA COURTS, BIRMINGHAM.

(See description and sketches on page 128.)

ALL SAINTS' CHURCH, BRAYBROOKE.

This church, an interesting specimen of the 13th-century architecture, is one of a series in the forest of Arden, built by order of King John, and was commenced soon after the year 1200, probably on the site of an old one. It was in almost a ruinous condition, owing mostly to neglect, partly to lapse of time, and also to damage done by lightning. The restoration scheme included the making good of the serious dilapidations of roof, and restoring, beautifying, and generally improving the church. The tower and steeple have been taken down and rebuilt, and a lightning conductor placed in position. All external walls have been shored up, the foundations underpinned and insecure portions were also taken down and rebuilt. The lead, boarding, rafters and roof timbers were removed and re-used as far as practicable in framing the new roof. All parapets were raised and rebuilt, and a new parapet built over chancel arch gable, and all arches of windows and doors where cracked taken out and new arches inserted. The plaster of the walls (except tower walls and where coloured decoration was discovered) and all lime-white have been removed, and the stone dressings re-dressed and pointed. All the old pews were taken to pieces and re-framed as panelling to be fixed to walls. The walls above the panelling were finished in rough stucco. All wood floors were taken up and relaid with wood blocks on 6in. concrete. The nave is seated with low benches and two rows of choir stalls placed in the chancel. A new east window to chancel, new chancel arch, new and restored screens, and new cover to font have been completed, together with a new altar, new pulpit, new lectern, heating (Grundy's patent), and general improvements. The total cost has been about £1,800. Messrs. Giles, Gough, and Trollope were the architects. These drawings are now on view at the Royal Academy exhibition.

THE GOLDSMITHS' COMPANY'S TECHNICAL INSTITUTE, NEW CROSS.

(For description and further illustrations see pp. 104-5)

COLFE SCHOOLS.

These schools have been recently erected upon Lewisham-hill for the governors of Colfe's Grammar Schools (now represented by the Leathersellers' Company). They comprise on plan a large central hall with open timber roof, from which six class-rooms open direct, master's and assistant masters' rooms, cloak-rooms, caretaker's rooms, and all the necessary offices. They are built of red brick with dressings of Ancaster stone and slated roofs, and are heated throughout by hot water. Messrs. Giles, Gough, and Trollope, 28, Craven-street, were the architects, Mr. Willcock, of Wolverhampton, was the builder, and Messrs. Berry, of Westminster, carried out the heating.

ST. STEPHEN'S VICARAGE, GUERNSEY.

This vicarage has been lately completed at a cost of only £1,200. It stands in a plot of ground adjoining the church of St. Stephen commanding beautiful views. Mr. G. F. Peek, of Delancey, was the contractor.

THE CHURCH TOWER, MANSFIELD WOODHOUSE, NOTTS.

In the year 1305 the church at Mansfield Woodhouse was burnt down, and the tower shown in sketch is what remains of the church built after this fire during the same century. The rest of the church is quite modern, the nave being rebuilt in the year 1858, and the chancel in 1878, and since the latter date a projecting porch has been added on the south side, similar to one on the north side. The church is prettily situated in a secluded churchyard surrounded by trees, but unfortunately the boundary-wall and adjacent houses are so near the church on the west and north sides as to preclude a view being taken from the west. The tower is built of a grey-toned stonework, much covered with lichen, and the effect is a pleasing combination of solidity and picturesqueness. In the early part of the present century a shock of earthquake was felt, while service was being held in the church, and this probably accounts for the iron bands on the spire. The sketch we publish is by Mr. H. Harrington.

CHOIR STALLS, SCREEN, ETC., AT ST. PAUL'S CATHEDRAL.

The stalls of St. Paul's Cathedral are divided into two bays on each side of the choir. The eastern bay on south side is illustrated this week, the drawings of which obtained the Royal Academy Silver Medal for measured work in December last. The greater portion of them were plotted on the spot to 1½in. scale, details being very carefully taken full size with a lead-tape, and the finished drawings to 1½in. scale were collated from this information. According to Dean Milman (*vide* "Annals of St. Paul's," chap. xvii. page 447), the design was by Sir Christopher Wren, and the carving executed by Grinling Gibbons, the whole being carried out in oak, with the exception of the figures, the swags of fruit and flowers under gallery, and other delicate portions of the carving, which are in a lighter-coloured material, possibly satin or limewood. The wrought iron grilles which fill in upper panels of doors, and openings on staircases, were the work of Tijou ("Longman's History of 3 Cath. of St. Paul's," chap. x. page 145). The throne in the centre of the stalls on south side is the one usually occupied by the Bishop of London; but on some occasions, when the Archbishop or other Bishops are present, the more elaborate throne on the east is used by him as Bishop of the Diocese.—Charles W. Baker.

GROSVENOR HOTEL, HULL.

The Grosvenor Hotel, Carr-lane, Hull, which we illustrate this week, is now in course of erection from the design of Mr. W. Alfred Gelder, A.R.I.B.A., of 12, Bowlalley-lane, Hull. It is designed to meet the joint requirements of a café and hotel, with accommodation for 64 beds, including dining-hall, café, billiard-room, &c., for the joint purposes. It will be lighted by electricity throughout. The building contract is being executed by Mr. Fred Blackburn, of Hull. The total cost of the building will be about £12,000.

We are glad that one of the 17 large gold medals given to exhibitors of all nations at the Jubilee Art Exhibitions recently held in Berlin has been awarded to Mr. Alfred Waterhouse, R.A. The other British artists similarly honoured are Mr. Stanhope Forbes and Mr. J. J. Shannon. Four of the 73 smaller gold medals have gone to British exhibitors—viz., Messrs. Colin Hunter, R.A., J. Pettie, R.A., Marcus Stone, R.A., and Onslow Ford, A.R.A.

COMPETITIONS.

Sheffield.—The Sheffield School Board recently instituted a competition for plans for the additions to the Central Higher Grade School, and a new elementary school to be erected in Holly-street. The Central School was the first of its kind erected in England; but since then improvements have been made on that experimental effort, and it was desired that Sheffield should not fall into the rear, but that the high grade school appointments and fittings should be brought up to date. The designs marked "Labore et Perseverantia" were selected, and on opening the sealed envelope it appeared that these were designed by Mr. J. B. Mitchell-Withers, of Sheffield; the sum of ten guineas was awarded to Mr. C. J. Innocent, whose designs came next in order of merit. The additional buildings will include the following departments: — In the basement — cookery classes, dining-rooms, joiners' shop and metal-working shop, and laundry; on the ground floor — machine drawing and lecture rooms to accommodate 120 students, physical laboratory, and lecture-room for 50 students; first floor—chemical laboratories for 140 students, and lecture-room, balance-room, and other necessary stores. The present school will be modified to suit the new arrangements. The Peripatetic Demonstrators' Department at the corner of Orchard-lane and Holly-street contains preparation room, joiners' shop, offices, and stores, with the caretaker's house adjoining. The elementary school building is placed at the corner of Holly-street and Bow-street. The accommodation provided is for 292 infants on the ground floor, and with a mixed school for 250 on the first floor. A playground is provided on the top of the building, and the basement is devoted to workshops and playsheds. The style adopted for the buildings is that of the English Renaissance, to harmonise with the present schools and offices, which were designed by Mr. E. R. Robson, F.S.A.

CHIPS.

In Tuesday's *Gazette* the name of Joseph Higgs of Upper Park-place, Dorset-square, builder and contractor, appears in the list of adjudications in bankruptcy.

Some fresh stained glass for the windows of the Roman Catholic Church of Our Lady and St. Cuthbert at Prudhoe Hall has been executed by Messrs. Atkinson Brothers, of the Oxford-street Stained Glass Works, Newcastle-on-Tyne.

In our notice of the new banking premises, now being erected at Warrington for the National Provincial Bank of England, on p. 96 last week, we should have said that the architect is Mr. Charles R. Gribble, of London (who is the Bank's standing architect), and the contractors are Messrs. Robert Neill and Sons, of Manchester. New banking premises for the same bank are now in course of erection, under the same architect, at Newport, Mon., Bristol, Cardiff, Boston, Barry Dock, Hartlepool, and Bedminster; and alterations at Bournemouth, St. Martin's-le-Grand, and Bishopsgate-street, London.

At the last meeting of the board of guardians of the several parishes included in the Holbeach Union it was decided to make extensive additions to the existing infirmary, and to erect a new block of infectious wards and administrative offices, in accordance with plans prepared by Mr. Joseph Sawyer, F.R.I.B.A., of 63, Chancery-lane, W.C.

The foundation stones of a Nonconformist cemetery at Buckley, Flintshire, were laid on Tuesday week. The ground is two acres in extent and the buildings, including a chapel and caretaker's house, will be erected from plans by Mr. R. Owen, of Liverpool, Mr. R. D. Davies, of Buckley, being the contractor.

The Midland Wire Cordage Company, of Orchard Works, Vincent-street, Birmingham, have just issued a catalogue of their specialities, which will interest architects and builders. Their safety lightning conductors are especially worthy of notice.

The Hungarian Minister of Ways and Communications inspected, on Tuesday, the works for regulating the flow of water at the great cataract of the Danube at the Iron Gate. The locks of the future Ship Canal are half-completed, and the work of blasting the rocks is being actively proceeded with.

An addition to the hotel at Fowey is rapidly approaching completion. It includes 20 bedrooms and dining-room, billiard-room, and smoke-room. The addition will make the hotel more than a large again. The cost will be about £5,000. Mr. Isbell is the contractor, and the architect is Mr. H. J. Snell, of Plymouth.

WAYSIDE NOTES.

IF the City Corporation will deal generously with the Government, the proposed Gallery of British Art will become an accomplished fact. The Government have offered to purchase a site between the City of London Schools and the Temple, and expect some concession on the part of the Corporation, so far as concerns the price to be paid for the land. Most persons think that the Corporation should meet the Government, and not demand the full value of the site. It certainly seems only reasonable to expect that, inasmuch as the whole matter has been the outcome of generous gifts and concessions; the "City Fathers" might also do something to help on a good cause. The site on the Embankment is well suited to the purpose, and it will also be a good thing to have a monumental building in this position. Hitherto the edifices placed along the Embankment have together had a monumental effect, however much some, individually, may be open to criticism. It would be a pity to spoil the general effect by the introduction of a commonplace type of building, there being always some chance of such an eventuality. The placing of the new gallery on the proposed site will lessen the chance of spoiling what is perhaps the very finest prospect in London.

In the matter of the proposed Campo Santo at Westminster, Mr. Waterhouse has written to the *Times*, explaining his reasons for adhering to the Refectory site in preference to the one proposed in the Old Palace-yard. The writer explains that the approaches to the chapel, proposed on the refectory site, would be much better than to the building proposed in the Old Palace-yard. Approach to the latter would be rambling, and the building moreover would be in competition with the old work, besides hiding the Chapter House. Mr. Waterhouse likes Mr. Pearson's design for the chapel—if so it may be called—in the rear of the great cloisters. You gave an illustration some time back of this design, and most architects will have been pleased with its effect. It is to be hoped, therefore, that this will be the plan adopted, and that the work will be duly carried into execution. The deadlock of the Royal Commissioners was most unfortunate, however, and may put matters back indefinitely. It must be most puzzling for those who have finally to decide on a site, and one might well excuse a feeling of irritation on their part, that a Commission should have been appointed with so feeble a result. If it should be any assistance to such to know what the architectural world think about an architectural question, then I feel sure they need not doubt but that the sympathy of the profession is with the Refectory site, not necessarily because Mr. Waterhouse favours it, but because it recommends itself both on practical and artistic grounds, and is not out of harmony with an architect's feelings for old-time architecture.

Mr. Waterhouse, I see, has been awarded a large gold medal for his exhibits at the International Art Exhibition at Berlin. He thoroughly deserves it—redeeming English architecture as he does in the eyes of the world from its present rather commonplace character. Foreign countries can't knight bishop's sons; but it is evident they confirm the suffrages of the readers of the BUILDING NEWS recorded long ago as to who is the leading British architect.

"C. P. S.," evidently familiar with railway engineering, and perhaps himself familiar to many readers of the *English Mechanic*, writes to the *Standard* of Wednesday last *re* the Swiss railway bridges. The writer says that the recent disaster near Basle has awakened the Swiss railway authorities to the necessity of strengthening a great many of the iron bridges on their different railways, which, with the exception of the St. Gothard railway—in every respects first class—are all more or less of a light character, intended chiefly for light traffic and low speeds. The main lines radiating from Basle to Berne and to Zurich are better, but even on these the mode of carrying the permanent way over the bridges is objectionable. "C. P. S." visited the four viaducts on the Zurich main line, viz., those at Brugg, Thurgi, Baden, and Wettingen, which cross the Swiss tributaries of the Rhine—the Aar, Reuss, and the Limmat. Three of these viaducts are of iron, and vary from 500ft. to 1,500ft. in length, with spans of from 100 to 200ft., the rails being from 100 to 130ft. above river level. Two of the viaducts are of the ordinary lattice-girder type; that of Brugg, remarkable for boldness of design, consists of six double-parabolic (fish-shaped) "Pauli" girders, forming a continuous curve. These particulars may be interesting to engineering leaders at the present time; but the point to which "C. P. S." draws attention is the manner of carrying the permanent way. The rails rest upon the ordinary transverse sleepers, of heavy scantling, it is true, but yet simply resting, in their turn, on the girders; so that between the sleepers not only the rails, but the joints in the rails, are suspended, as it were, over the river.

Providing that the rails or the joints in the rails do not give way, this construction should be sound enough. But in the event of such a failure it is evident that a heavy train would almost surely bring down the bridge. It does not do in railway engineering to be always calculating what might happen, or there would be no railways at all, nor, indeed, any construction, enterprise, or occupation whatever, except the lying wrapped up in cotton-wool to minimise the risk of unforeseen, possible, if improbable, personal injuries; but in the case of these Swiss viaducts there is certainly something left undone to insure ordinary security. Even guard-rails are omitted, excepting at Brugg, and it would only have been natural to fill in between the girders with a solid row of sleepers, with or without a longitudinal sleeper above to receive the rails. Over these bridges pass very heavy goods traffic, and the whole of the International passenger traffic from Basle to Austria *viâ* the Arlberg, and to the Engadine, and *vice versâ*, and it is therefore of vital importance that they should be as sound in design and construction as they can be made. If the Swiss railway authorities are contemplating improvements, they might well regard the matter to which "C. P. S." has drawn attention.

The President of the Board of Trade has issued a circular calling upon the railway companies to give returns that will show the number of cast-iron bridges now in use in Great Britain and Ireland, together with the dates of their construction, &c. In due course the result will be presented to Parliament.

You had quite a good show of competition advertisements last week, and it is noticeable therefrom how the system of announcing assessors' names is coming more into vogue, the first two advertisements stating the names of the assessors proposed to be engaged by the promoters of the competition. This is gratifying in the extreme, considering how, only a few years ago, the assessor was not appointed in one out of a dozen competitions. So far as I regard the matter, as an occasional or "retail" competitor, I like to see the name of the assessor stated at the outset. It may now and then deter one from competing, but as a general rule it encourages one to go in with a good heart. There is such a thing as—there has, indeed, been too much—*pandering to the tastes of the assessor;* but short of this it is to the common advantage of competitors to know that Mr. Dog-tooth or Mr. Egg-and-Tongue has been appointed. Panderers, doubtless, often deceive themselves, as there must be many men who would rather be prejudiced against competitors that they suspected of pandering to their known views on architectural design. My own reason for liking to see the name of the assessor beforehand is that one is prevented from wasting time on a subject of which the assessor may be ignorant. Often architects, unlearned in the design of the class of buildings to which a certain competitor refers, have been appointed assessors; and I can say from experience that it is no joyful news to learn that an assessor has been appointed to judge plans who knows about as much about the special design of the particular building as a milkman knows how to make milk.

The foundation-stone of the Battersea Polytechnic was laid early this week, and Mr. E. W. Mountford had the honour of handing the silver trowel to the Prince of Wales. The honour, all will admit, is well deserved, coming, as it has done, after many "laborious days." Mr. Mountford has come to the fore by simple force of competing, and excellence of work in competitions; and it is just because a successful competition involves such laborious days that we are ready to honour the winner and wish him continued success. The Battersea Polytechnic is one of the series of technical and recreative institutes to be erected in different districts in London, and Mr. Mountford's plan will provide a building in every way suited to its purpose. The object of these institutes or polytechnics is most laudable, and I trust that the others contemplated will be as successfully planned and inaugurated as that at Battersea. Above all, it is to be hoped that the buildings will really effect their purpose, and prove a source of delight to many who at present have no means of obtaining recreation and instruction such as it is intended to provide in these polytechnics.

GOTH.

CHIPS.

Mr. Harry Wilson Perrers, architect, died in Banstead Lunatic Asylum on Sunday, the 12th inst., aged 46 years.

Important works of drainage and sanitary works have just been carried out at the City Freemen's Orphan School, Ferndale-road, Brixton, at a cost of over £2,000. Messrs. Mowlem and Co. were the contractors.

Mr. J. H. E. Partington, portrait painter, and some time principal of the Stockport Art School, also a well-known member of the Manchester Academy, has been appointed director of the National Gallery of Victoria, at Melbourne, at a salary of £600 a year, with free rooms, and the right of private practice.

The first section of the Douglas Head Marine Drive having now been completed, the opening took place yesterday (Thursday), when the inaugural ceremony was performed by the Lieutenant-Governor of the Isle of Man, Mr. Spencer Walpole.

A fatal scaffold accident occurred on Monday at Galashiels, whereby one young man, named George Anderson, was killed, and another named Newlands was seriously hurt. They were painting inside the roof of the Volunteer Hall, on a staging 30ft. high. While they were attempting to open a ventilator, the cord broke, and they lost their balance and fell to the floor. Anderson's skull was fractured, and he died shortly afterwards. Newlands was carried home badly hurt.

The Middle Temple Library will be closed during the ensuing long vacation, in order that several alterations to the roof and other parts of the building may be carried out. The alterations are expected to be finished about the end of October.

A large and massive seat and kneeler, carved in English oak, has been placed in Hawarden Church, close by the eagle lectern on the south side of the chancel arch. The miserere seat is sculptured with a representation of the pelican in her piety. Mr. Harry Hems, of Exeter, executed the work.

Supt. Tozer, the chief of the Manchester Fire Brigade, has just patented an invention, of which the principal feature is a movable shutter, sliding between two pillars. The advantages gained by this arrangement are that the horses can be stabled with their heads towards the shutter, thus avoiding turning them in their stalls, and enabling them to be led out at once.

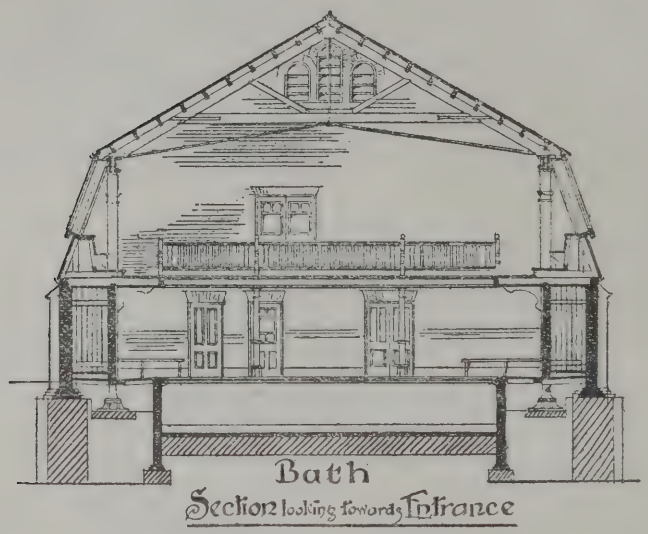
A special meeting of the General Purposes Committee of the County Council for Cornwall was held last week at Truro, to consider an application for a license for the performance of stage plays in the large hall of the new public rooms at Camborne. Mr. Hickes, one of the county surveyors, had declined to grant a certificate for the building on several grounds, he being dissatisfied with the position of the hydrants, with the use of sawdust as pugging for the floor, &c.; but after hearing Mr. Silvanus Trevail, M.S.A., the architect of the hall, on these points, the committee granted the license.

The Runcorn Improvement Commissioners have initiated a proposal to secure the erection of a vehicular bridge to connect Runcorn with Widnes, and the subject has already been considered by the governing bodies of both towns. Sir Douglas Fox has drawn up a scheme that provides for the carrying over the Mersey of a vehicular bridge at a cost of £140,000. It is proposed that the gradients on each side should be 1 in 30, and that the bridge should be constructed at an elevation of 75ft. above high-water mark. This will be 10ft. lower than the elevation of the present railway and foot-bridge. The plan is to build it on the east, or Warrington side, of the present bridge, which it will adjoin.

The highway committee of the Paris Municipal Council has decided in favour of the construction of a subterranean electric tubular tramway from the Bois de Boulogne to the Bois de Vincennes, passing under the Boulevard Diderot, the Rue de Rivoli, the Place de la Concorde, and the Avenue des Champs Elysées.

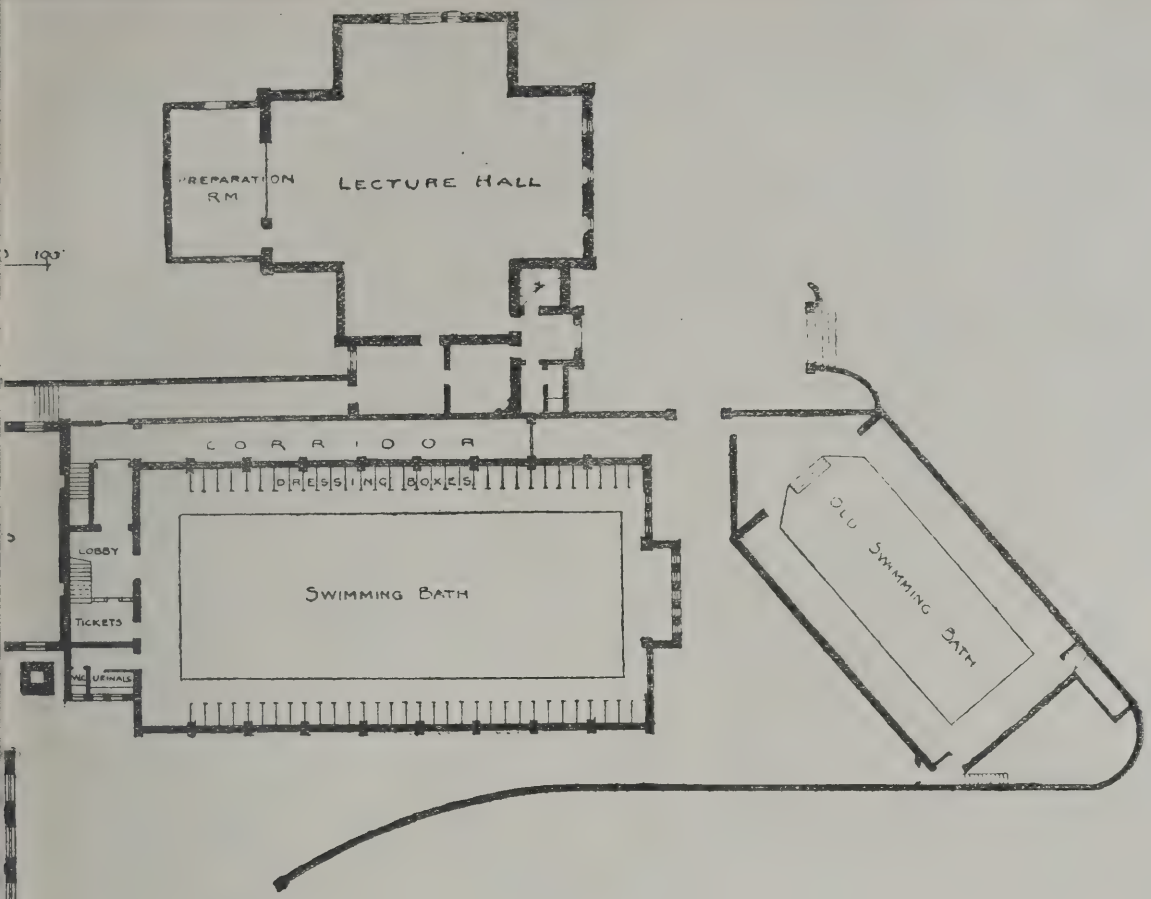
GOLDSMITHS' COMPANY'S TECHNICAL INSTITUTE, NEW CROSS.

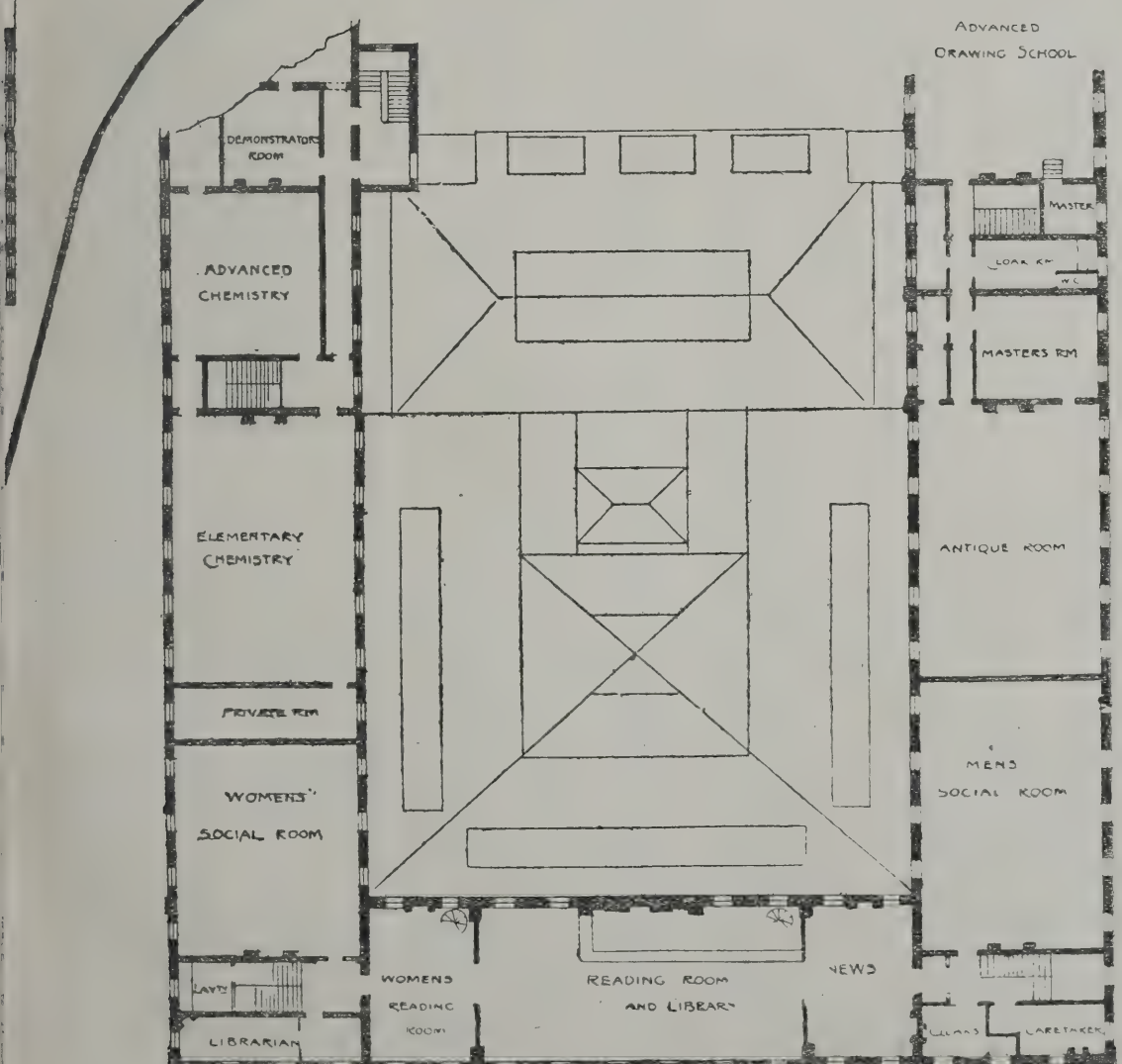
(See also pp. 104-5.)



Bath

Section looking towards Entrance





ENFOLD ARCHT

FIRST FLOOR

PRICES.—XI.*

[It will have to be borne in mind that the prices given do not include any provision for an increase in the cost of labour, should the men now on strike obtain the 10d. per hour; and contracts taken pending the strike should be entered into with caution, and ought to have a clause allowing an increase if the 10d. is paid, though it scarcely seems probable that it will be.]

MASON.

YORK STONE: PARKSPRING.

		£	s.	d.
Coping, sawn all round and throated both edges 12 by 2	per foot run	0	1	2
Ditto 12 by 2½ ditto	ditto	0	1	4
Ditto 12 by 3 ditto	ditto	0	1	7
Ditto 17 by 2½ ditto	ditto	0	1	10
Ditto 17 by 3 ditto	ditto	0	2	4
Ditto 17 by 4 ditto	ditto	0	3	0
Ditto 18 by 4 ditto	ditto	0	3	2
Ditto 21 by 4 ditto	ditto	0	3	9
Add for rubbing face and edges:—				
12 by 2	ditto	0	0	2
12 by 2½	ditto	0	0	2½
12 by 3	ditto	0	0	2¾
17 by 2½	ditto	0	0	3
17 by 3	ditto	0	0	3
17 by 4	ditto	0	0	3
18 by 4	ditto	0	0	3½
21 by 4	ditto	0	0	3¾
Add for weathering both ways	ditto	4d. to 6d.		
Channel stones, tooled three sides, and with sunk channel 10 by 4	ditto	0	2	1
Ditto 11 by 4 ditto	ditto	0	2	3
Ditto 12 by 4 ditto	ditto	0	2	6
Ditto 13 by 4 ditto	ditto	0	2	9
Ditto 14 by 4 ditto	ditto	0	3	0
Add if rubbed	ditto	2d. to 3d.		
Add if stopped	ditto	0	0	2
Add for holes for gratings, &c.	each	0	0	9
Add for stops	ditto	6d. to 9d.		
Templates, self-faced, bedded in cement 9 by 4½ by 3	each	0	0	11
Ditto 9 by 9 by 3	ditto	0	1	1
Ditto 9 by 14 by 3	ditto	0	1	4
Ditto 9 by 18 by 3	ditto	0	1	8
Ditto 14 by 18 by 3	ditto	0	2	2
Ditto 9 by 9 by 4	ditto	0	1	2
Ditto 9 by 14 by 4	ditto	0	1	6
Ditto 14 by 14 by 4	ditto	0	2	2
Ditto 18 by 14 by 4	ditto	0	2	6
Ditto 9 by 9 by 6	ditto	0	1	7
Ditto 9 by 14 by 6	ditto	0	2	4
Ditto 9 by 18 by 6	ditto	0	2	10
Ditto 14 by 18 by 6	ditto	0	3	9
Ditto tooled all round 9 by 4½ by 3	ditto	0	1	2
Ditto 9 by 9 by 3	ditto	0	1	4
Ditto 9 by 14 by 3	ditto	0	1	7
Ditto 9 by 18 by 3	ditto	0	2	1
Ditto 14 by 18 by 3	ditto	0	2	4
Ditto 9 by 9 by 4	ditto	0	1	7
Ditto 9 by 14 by 4	ditto	0	1	10
Ditto 14 by 14 by 4	ditto	0	2	3
Ditto 18 by 14 by 4	ditto	0	2	10
Ditto 9 by 9 by 6	ditto	0	1	10
Ditto 9 by 14 by 6	ditto	0	2	7
Ditto 9 by 18 by 6	ditto	0	3	2
Ditto 14 by 18 by 6	ditto	0	3	8
Bases, self-faced 18 by 18 by 6	ditto	0	6	0
Ditto 21 by 21 by 6	ditto	0	7	6
Ditto 24 by 24 by 6	ditto	0	10	0
Ditto 24 by 24 by 9	ditto	0	15	6
Ditto 36 by 36 by 9	ditto	1	12	0
Ditto rough tooled 18 by 18 by 6	ditto	0	7	0
Ditto 21 by 21 by 6	ditto	0	9	6
Ditto 24 by 24 by 6	ditto	0	12	0
Ditto 24 by 24 by 9	ditto	0	18	0
Ditto 36 by 36 by 9	ditto	1	19	0

YORK STONE: ROBIN HOOD.

		£	s.	d.
In blocks at London depot	per foot cube	0	3	0
Ditto including waste and cartage within four miles of depot	ditto	0	3	10
Ditto ditto including hoisting, setting, and cleaning down	ditto	0	4	6
Add the usual extras for hoisting above 30ft.	ditto			
Add for large stones when the average is exceeded	ditto	0	0	3
Half sawing	per foot super.	0	0	4
Plain work to beds and joints	ditto	0	0	10
Ditto rubbed to faces	ditto	0	1	0
Ditto ditto circular	ditto	0	1	4
Sunk work	ditto	0	1	3
Ditto rubbed	ditto	0	1	6
Ditto ditto circular	ditto	0	1	8
Ditto ditto ditto rubbed	ditto	0	1	10
Moulded work	ditto	0	1	10
Ditto rubbed	ditto	0	2	1
Ditto in short lengths	ditto	0	2	4
Ditto stopped in ditto	ditto	0	2	6
Ditto ditto circular	ditto	0	2	2
Ditto ditto ditto rubbed	ditto	0	2	6
Ditto ditto ditto in short lengths	ditto	0	2	9
Ditto ditto ditto stopped	ditto	0	3	0
Tooled stroke to face work	ditto	0	0	11
Ditto sunk	ditto	0	1	2
Ditto circular	ditto	0	1	4
Ditto sunk circular	ditto	0	1	7
Jointed edge to 3in. stone	per foot run	0	0	2½
Ditto ditto 4in.	ditto	0	0	3¾
Ditto ditto 5in.	ditto	0	0	4
Ditto ditto 6in.	ditto	0	0	4½
Joggle joints to 3in. and cement	ditto	0	0	8
Ditto ditto 4in. ditto	ditto	0	0	9
Ditto ditto 5in. ditto	ditto	0	0	10
Ditto ditto 6in. ditto	ditto	0	0	11
Ditto he & she 3in. ditto	ditto	0	0	11
Ditto ditto 4in. ditto	ditto	0	1	0
Ditto ditto 5in. ditto	ditto	0	1	1
Ditto ditto 6in. ditto	ditto	0	1	3
If run with lead, add for each inch in thickness	ditto	0	0	1

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		£	s.	d.
Plain ends to steps	each	0	0	6
Moulded ditto, 6in.	ditto	0	0	11
Ditto ditto 8in.	ditto	0	1	1
Plain ends to window-sills	ditto	0	0	4
Stops to weathering	ditto	0	0	8
Rounded corners to steps	ditto	0	0	8
Ditto to moulded ditto	ditto	0	1	1
Ditto semi	ditto	0	1	9
Ditto ditto to moulded ditto	ditto	0	3	0
Ditto to sinks	ditto	0	0	8
Mortises for balusters	ditto	0	0	3
Add for lead	ditto	0	0	3
Mortises for newels	ditto	0	0	4
Add for lead	ditto	0	0	6
Iron dowels and mortises	ditto	0	0	6
Coping cramps, including mortises and cement	ditto	0	1	0
Holes for pipes in sink	ditto	0	0	8
Rebated holes for coal-plates	ditto	0	2	0
Notchings in hearths	ditto	0	0	6
Ditto double	ditto	0	0	9
Mortises for gate hinges	ditto	0	0	6
Ditto, including lead	ditto	0	1	0
Ditto large	ditto	0	0	9
Ditto, including lead	ditto	0	1	6
Landings, tooled one side, and hoisted and set, 3in. thick	per foot super.	0	1	6
Ditto 4in.	ditto	0	1	11
Ditto 5in.	ditto	0	2	4
Ditto 6in.	ditto	0	2	10
Ditto 7in.	ditto	0	3	4
Add for tooling one side	ditto	0	0	2
Add for rubbing each side	ditto	0	0	2
If above 3 ft. in one stone, add	ditto	0	0	3
Landings sawn one side, and hoisted and set 3in.	ditto	0	1	7
Ditto 4in.	ditto	0	2	0
Ditto 5in.	ditto	0	2	6
Ditto 6in.	ditto	0	3	0
Ditto 7in.	ditto	0	3	6
Add half-sawing if sawn two sides.				
Hearthstones, 1¼in., tooled	ditto	0	1	0
Ditto 2in. ditto	ditto	0	1	1
Ditto 2¼in. ditto	ditto	0	1	2
Ditto 3in. ditto	ditto	0	1	3
Ditto 1¼in. sawn	ditto	0	1	1
Ditto 2in. ditto	ditto	0	1	2
Ditto 2¼in. ditto	ditto	0	1	3
Ditto 3in. ditto	ditto	0	1	4
Paving, 2in. thick, self-faced, laid in parallel courses	ditto	0	0	9
Ditto 2¼in. ditto	ditto	0	0	10
Ditto 3in. ditto	ditto	0	0	10½
Ditto 2in. tooled	ditto	0	0	10
Ditto 2¼in. ditto	ditto	0	0	11
Ditto 3in. ditto	ditto	0	1	0
Ditto 2in. rubbed	ditto	0	0	10⅔
Ditto 2¼in. ditto	ditto	0	1	0
Ditto 3in. ditto	ditto	0	1	1½
Chimneypieces, 1in., in shelf jambs and frieze, rubbed	ditto	0	1	1
Ditto ditto 1¼in. ditto	ditto	0	1	3
Ditto ditto 1¾in. ditto	ditto	0	1	5
Ditto ditto 2in. ditto	ditto	0	1	9
Ditto in boxed chimneys—				
Ditto ditto ⅞in. ditto	ditto	0	1	2
Ditto ditto 1in. ditto	ditto	0	1	3
Ditto ditto 1¼in.	ditto	0	1	6
Ditto ditto 1¼in.	ditto	0	1	9
Ditto ditto 2in.	ditto	0	2	0
Sinks, tooled and sunk, 4in.	ditto	0	1	11
Ditto ditto 5in.	ditto	0	2	2
Ditto ditto 6in.	ditto	0	2	5
The value of sinks varies with their size.				
Steps and thresholds, tooled two sides, and bedded in cement 9 by 6	per foot run	0	2	3
Ditto 10 by 6	ditto	0	2	7
Ditto 11 by 6	ditto	0	2	9
Ditto 12 by 6	ditto	0	3	0
Ditto 11 by 7	ditto	0	3	4
Ditto 12 by 7	ditto	0	3	7
Ditto 13 by 7	ditto	0	3	10
Ditto 15 by 7	ditto	0	4	6
Ditto 18 by 7	ditto	0	5	3
Ditto rubbed two sides, and bedded in cement 9 by 6	per foot run	0	2	5
Ditto 10 by 6	ditto	0	2	8
Ditto 11 by 6	ditto	0	2	11
Ditto 12 by 6	ditto	0	3	3
Ditto 11 by 7	ditto	0	3	6
Ditto 12 by 7	ditto	0	3	9
Ditto 13 by 7	ditto	0	4	0
Ditto 15 by 7	ditto	0	4	6
Ditto 18 by 7	ditto	0	5	3
Add for back-jointing		0	0	2
Add for moulded nosing, and sunk risers		0	0	9
Spandrel steps, rubbed all round, and birdsmouth rebated at joints, fixed complete 9 by 6	per foot run	0	2	3
Ditto 10 by 6	ditto	0	2	7
Ditto 11 by 6	ditto	0	2	10
Ditto 12 by 6	ditto	0	3	2
Ditto 11 by 7	ditto	0	3	3
Ditto 12 by 7	ditto	0	3	6
Ditto 13 by 7	ditto	0	3	10
Ditto 15 by 7	ditto	0	4	4
Add for moulded nosing, &c.		0	0	9
Window sills, tooled, weathered, and throated 8 by 3	per foot run	0	1	2
Ditto 8 by 3½	ditto	0	1	4
Ditto 9 by 4	ditto	0	1	6
Ditto 10 by 4	ditto	0	1	8
Ditto 11 by 4	ditto	0	1	10
Ditto rubbed ditto, sunk, weathered, and throated 8 by 3	ditto	0	1	5
Ditto 8 by 3½	ditto	0	1	7
Ditto 9 by 4	ditto	0	1	9
Ditto 10 by 4	ditto	0	1	11
Ditto 11 by 4	ditto	0	2	2
Curbs, tooled three sides, and bedded in cement 5 by 6	per foot run	0	1	2
Ditto 6 by 6 ditto	ditto	0	1	5
Ditto 7 by 6 ditto	ditto	0	1	8
Ditto 8 by 6 ditto	ditto	0	1	11

		£	s.	d.
Curbs, tooled three sides, and and bedded in cement				
Ditto 9 by 4 ditto	per foot run	0	1	5
Ditto 9 by 5 ditto	ditto	0	1	11
Ditto 9 by 6 ditto	ditto	0	2	2
Ditto 9 by 8 ditto	ditto	0	2	10
Add for chamfer	ditto	0	0	2
Add for rounding on top edge	ditto	0	0	4
Add for rebate	ditto	0	0	3
Curbs, rubbed three sides and bedded 5 by 6	ditto	0	1	5
Ditto 6 by 6 ditto	ditto	0	1	7
Ditto 7 by 6 ditto	ditto	0	1	10
Ditto 8 by 6 ditto	ditto	0	2	0
Ditto 9 by 4 ditto	ditto	0	1	7
Ditto 9 by 5 ditto	ditto	0	1	11
Ditto 9 by 6 ditto	ditto	0	2	4
Ditto 9 by 8 ditto	ditto	0	3	0
Coping sawn all round and throated both edges				
Ditto 12 by 2 ditto	per foot run	0	1	1
Ditto 12 by 2½ ditto	ditto	0	1	2
Ditto 12 by 3 ditto	ditto	0	1	5
Ditto 17 by 2½ ditto	ditto	0	1	8
Ditto 17 by 3 ditto	ditto	0	2	0
Ditto 17 by 4 ditto	ditto	0	2	8
Ditto 18 by 4 ditto	ditto	0	2	10
Ditto 21 by 4 ditto	ditto	0	3	4
Add for rubbbing face and edges				
Ditto 12 by 2 ditto	per foot run	0	0	2
Ditto 12 by 2½ ditto	ditto	0	0	2¾
Ditto 12 by 3 ditto	ditto	0	0	2¾
Ditto 17 by 2½ ditto	ditto	0	0	3
Ditto 17 by 3 ditto	ditto	0	0	3
Ditto 17 by 4 ditto	ditto	0	0	3
Ditto 18 by 4 ditto	ditto	0	0	3½
Ditto 21 by 4 ditto	ditto	0	0	3¾
Add for weathering both ways	ditto	4d. to 6d.		
Channel stones tooled three sides and with sunk channel				
Ditto 10 by 4 ditto	per foot run	0	1	11
Ditto 11 by 4 ditto	ditto	0	2	1
Ditto 12 by 4 ditto	ditto	0	2	3
Ditto 13 by 4 ditto	ditto	0	2	6
Ditto 14 by 4 ditto	ditto	0	2	8
Add if rubbed	ditto	2d. to 3d.		
Add if stopped	ditto	0	0	2
Add for holes	each	0	0	9
Add for stops	ditto	6d. to 9d.		
Templates self-faced bedded in cement				
Ditto 9 by 4½ by 3	each	0	0	10
Ditto 9 by 9 by 3	ditto	0	1	0
Ditto 9 by 14 by 3	ditto	0	1	2
Ditto 9 by 18 by 3	ditto	0	1	5
Ditto 14 by 18 by 3	ditto	0	1	10
Ditto 9 by 9 by 4	ditto	0	1	1
Ditto 9 by 14 by 4	ditto	0	1	5
Ditto 14 by 14 by 4	ditto	0	1	10
Ditto 18 by 14 by 4	ditto	0	2	4
Ditto 9 by 9 by 6	ditto	0	1	5
Ditto 9 by 14 by 6	ditto	0	2	1
Ditto 9 by 18 by 6	ditto	0	2	7
Ditto 14 by 18 by 6	ditto	0	3	4
Ditto tooled all round ditto—				
9 by 4½ by 3	ditto	0	1	1
Ditto 9 by 9 by 3	ditto	0	1	3
Ditto 9 by 14 by 3	ditto	0	1	5
Ditto 9 by 18 by 3	ditto	0	1	10
Ditto 14 by 18 by 3	ditto	0	2	1
Ditto 9 by 9 by 4	ditto	0	1	5
Ditto 9 by 14 by 4	ditto	0	1	8
Ditto 14 by 14 by 4	ditto	0	2	1
Ditto 18 by 14 by 4	ditto	0	2	8
Ditto 9 by 9 by 6	ditto	0	1	8
Ditto 9 by 14 by 6	ditto	0	2	4
Ditto 9 by 18 by 6	ditto	0	2	11
Ditto 14 by 18 by 6	ditto	0	4	0
Bases, self-faced, and set complete—				
18 by 18 by 6	ditto	0	5	9
Ditto 21 by 21 by 6	ditto	0	7	3
Ditto 24 by 24 by 6	ditto	0	9	6
Ditto 24 by 24 by 9	ditto	0	14	6
Ditto 36 by 36 by 9	ditto	1	9	0
Ditto rough-tooled, and set complete—				
18 by 18 by 6	ditto	0	6	9
Ditto 21 by 21 by 6	ditto	0	8	6
Ditto 24 by 24 by 6	ditto	0	11	6
Ditto 24 by 24 by 9	ditto	0	17	0
Ditto 36 by 36 by 9	ditto	1	16	0

MANSFIELD STONE.

		£	s.	d.
Stone in blocks at London station, St. Pancras or King's Cross	per foot cube	0	2	6
Ditto delivered within 4 miles, and including waste	ditto	0	3	3
Ditto ditto, including hoisting and setting	ditto	0	4	0
Half-sawing	per foot super.	0	0	4
Plain work to beds and joints	ditto	0	0	10
Ditto rubbed faces	ditto	0	1	1
Ditto ditto circular	ditto	0	1	5
Sunk work	ditto	0	1	6
Ditto rubbed	ditto	0	1	8
Ditto ditto circular	ditto	0	1	11
Moulded work	ditto	0	2	6
Ditto short lengths	ditto	0	2	10
Ditto circular	ditto	0	3	6
Ditto ditto short lengths	ditto	0	4	0
Moulded work, circular, short lengths, stopped	ditto	0	4	3
Sawn landings, set in cement complete—				
5in.	ditto	0	2	9
Ditto 6in.	ditto	0	3	0
Ditto 7in.	ditto	0	3	6
Ditto 8in.	ditto	0	4	0
Add for rubbing each side	ditto	0	0	2
Jointed edges to landings, &c.—				
5in.	per foot run	0	0	4
Ditto 6in.	ditto	0	0	5
Ditto 7in.	ditto	0	0	6
Ditto 8in.	ditto	0	0	6
Joggle joints and cement—				
5in.	ditto	0	1	0
Ditto 6in.	ditto	0	1	0
Ditto 7in.	ditto	0	1	1
Ditto 8in.	ditto	0	1	1

			£	s.	d.
Joggle joints and cement, he and she	5in	per foot run	0	1	3
Ditto	6in	ditto	0	1	4
Ditto	7in	ditto	0	1	5
Dttto	8in	ditto	0	1	6
If run with lead add for each inch in thickness		ditto	0	0	1
Plain scantlings, sawn face, and edge, at quarry delivered and set, other labours to add—					
	9 by 6	ditto	0	2	3
Ditto	10 by 6	ditto	0	2	6
Ditto	12 by 6	ditto	0	3	0
Ditto	15 by 9	ditto	0	5	6
Ditto	18 by 9	ditto	0	7	0

ANCASTER STONE.

		£	s.	d.
Stone in blocks, at King's Cross station	per foot cube	0	2	0
Ditto delivered within four miles, and including waste	ditto	0	2	7
Ditto ditto set complete	ditto	0	3	5
Half sawing	per foot super	0	0	1½
Plain work to beds and joints	ditto	0	0	3
Ditto rubbed to faces	ditto	0	0	4½
Sunk work	ditto	0	0	7
Moulded work	ditto	0	1	5
Ditto circular	ditto	0	2	0

BOLSOVER STONE.

		£	s.	d.
Stone in blocks at King's Cross	per foot cube	0	3	10
Ditto delivered within four miles, and including waste	ditto	0	4	6
Ditto ditto and including scaffolding & setting complete	ditto	0	5	3
Half-sawing	per foot super	0	0	5
Plain work to beds and joints	ditto	0	0	9
Ditto to rubbed face	ditto	0	1	0
Ditto to ditto circular	ditto	0	1	4
Sunk work	ditto	0	1	4
Ditto rubbed	ditto	0	1	6
Moulded work	ditto	0	2	6
Ditto circular	ditto	0	3	0

RED CORSEHILL STONE.

		£	s.	d.
In blocks, delivered to site in London	per foot cube	0	2	8
Ditto including scaffolding, hoisting, and setting complete	ditto	0	3	6
Half sawing	per foot super	0	0	5
Plain work to beds and joints	ditto	0	0	8
Ditto rubbed faces	ditto	0	0	11
Sunk work	ditto	0	1	2
Ditto rubbed	ditto	0	1	4
Ditto ditto circular	ditto	0	1	7
Moulded work	ditto	0	2	0
Ditto circular	ditto	0	2	9
Ditto in short lengths	ditto	0	2	4
Ditto stopped	ditto	0	2	3

HOPTON WOOD STONE.

		£	s.	d.
In blocks at Camden	per foot cube	0	3	2
Ditto including waste and cartage within 4 miles of above	ditto	0	4	0
Ditto including scaffolding, hoisting, and setting complete	ditto	0	4	10

THE STRIKE OF LONDON CARPENTERS.

PROPOSED NEGOTIATIONS.

WE are glad to learn that arrangements have been effected for terminating the deadlock in the building trade of the Metropolis, which has now lasted for three months. The Conciliation Board of the London Chamber of Commerce sent a communication to the Central Master Builders' Association and the United Trades Committee offering their services by way of conciliation, but the suggestion met with no direct response. Mr. S. F. Watts, the secretary of the latter body, however, again approached Mr. Henshaw, secretary of the Master Builders' Association, and after some correspondence it has been arranged that a conference shall take place next week between nine representatives on either side, together with the two secretaries. Mr. Howard J. Colls, the President of the Association, with the eight members who took part in the last conference, will represent the masters; while on behalf of the carpenters, the delegates will be Messrs. Bowern and Dew, representing the Amalgamated Society; Mr. Mackie, of the Associated Society; Mr. Matkin, of the General Union; Mr. Miller, of the Perseverance; and Messrs. Chalmers, F. Cooper, Monk, and Williamson, non-unionists. The conference is arranged to take place at 31, Bedford-street, Covent Garden, at 3 p.m. on Monday afternoon next, when it is to be hoped that an arrangement materially satisfactory to all parties will be arrived at.

The committee for the erection of a memorial at Lisburn to the late Sir Richard Wallace have given the work to Messrs. Robinson and Son, of York-street, Belfast.

On Saturday morning the new dock which has been constructed at the north end of the railway dock at Goole had water let into it for the first time. It is four acres in extent, being 620ft. long, 260ft. broad, and 22ft. deep.

Building Intelligence.

BATTERSEA, S.W.—The foundation-stone of the Polytechnic Institute about to be built on part of the site of the ill-fated Albert Palace was laid on Monday by the Prince of Wales. The architect is Mr. Edward W. Mountford, F.R.I.B.A., whose design was selected in competition on the recommendation of Mr. Rowland Plumbe, F.S.A., and was illustrated in the BUILDING NEWS for March 27 and April 3 of this year (pp. 430, 466, 488, last vol). Mr. Mountford's plans were submitted to the criticism of Professor Garnett, Principal of the Durham College of Science, Newcastle-on-Tyne, at whose suggestion certain alterations were made. The buildings will stand some 40ft. back from the road. In the elevation the aim has been made to give a distinctly collegiate character, consistent with educational purposes. The materials to be used are red brick with terracotta for dressings. There will be a main block with annexes. The main block, fronting the Battersea Park-road, will be 260ft. in length, and two stories in height. The ground floor will be occupied by the administrative department. Upon the first floor will be class and lecture rooms, band and music rooms, and above these will be art schools, photographic rooms, and various laboratories. The shops will include bricklayers' and plumbers' shops, engineers' and turning shops, a pattern-maker's shop, carpenters' shop, electric work-shop, and dynamo, boiler, and engine rooms. There are also to be social and refreshment rooms for both sexes with separate entrances. At the back will be gymnasia and a swimming-bath. Of the £60,000 required all but £9,000 has been raised.

EDINBURGH.—The St. Cuthbert's and Dean School Board have obtained warrant, in the Edinburgh Dean of Guild Court, for the erection of school buildings at Comiston-road. The plans show a two-story structure, providing eight class-rooms and accommodation for 600 pupils, with cloak-rooms, teachers' rooms, and separate playgrounds with sheds for boys and girls. In the centre of the building, which has been so planned that the accommodation may, by an addition, be nearly doubled, provision has been made for a staircase leading to all the class-rooms. The heating will be effected by means of hot-water pipes, and the ventilation is to be carried on mechanically, a fan which will extract the vitiated air being driven by a gas-engine. There is no unnecessary ornament about the front elevation, its prominent features being a central gable and an abundance of windows. The cost of the work, the plans of which have been prepared by Mr. Robert Wilson, architect, 3, Queen-street, Edinburgh, is estimated at £8,900.

LEEDS.—The designs originally prepared by H.M. Office of Works for the General Post Office to be erected on the site of the Old Cloth Hall, were so generally disapproved of as inadequate and unworthy by the press, the architectural profession, and the town council, that amended elevations have now been sent in. The chief alterations are the substitution of Tuscan and Corinthian columns in the chief elevation for pilasters, the introduction of a central turret suggestive of the outline of the Leeds Town Hall on a diminished scale, and the breaking up of the skylines generally. The council of the Leeds and Yorkshire Architectural Society, at a special meeting held on the 16th inst., made the following report on the new design:—"Generally speaking, we consider the amended design a decided improvement upon the one originally submitted. There is a boldness and breadth of treatment displayed in the handling of the architectural features which was lacking in the first design. This improvement, however, does not apply to the design of the central tower, or cupola, which, although of larger size than that originally shown, is feeble in design, and certainly requires further consideration. If it is to be carried out in stone as stated, its architectural features are on too small a scale to harmonise with the proportions of the building below; and if it is to be of woodwork, it would prove much too large for suitable treatment in that material. The changes in the central portion of the principal façade are marked improvements upon the original design, which was much too 'crowded' in effect. Exception may be taken to the range of five dormers above the parapet, over the main cornice, which have a meagre look about them, and would be improved if handled in a bolder and less stiff manner. By the lifting up of the pediments over the fanlights of the principal entrance doorways, these important features are additionally emphasised. Below the cornice, an appearance of solidity is imparted to these portions of the structure by means of piers at the angles of the projections. It is cause for regret that the architect has not arranged for a more suitable position for the letter-boxes than the one indicated. A recessed logia or arcade would appear to u smore worthy of the building."

NORTON.—The contract for the chancel of the new church of St. Peter, Norton, near Leeds, is now completed, and Mr. Robert Wyse, of Auburn Hill, has defrayed the cost of the substantial foundations of the nave. About £2,000 additional is required to finish the nave. The foundation-stone of the new church (which is to be in the Decorated style) was laid in October, 1889, and the original intention was to erect only the chancel, south chapel, &c., and nave, leaving a western tower for future efforts. The estimated cost of the whole work was about £8,000. The first portion of the contract—the chancel, &c., and foundation for nave—was let to Mr. Burton, of Newcastle-on-Tyne, who has now completed his work. The chancel is 37ft. by 25ft., and 52ft. high. When completed the church will seat 700 adults.

CHIPS.

The new town hall for St. Martin's-le-Grand, at the south end of Charing Cross-road, which was opened by Mr. Balfour last week, has been built from the designs of Mr. Robert Walker, of St. Martin's-place, the contractors being Messrs. J. Mowlem and Co., of Pimlico. The chief room on the first floor is seated for 800 persons. The cost of the building has been £24,000, exclusive of fittings.

The annual dinner in connection with the Leicester Master Builders' Association was held at the Bull's Head Hotel, Market-place, on Thursday evening in last week, when the president, Mr. D. Garratt (Clark and Garratt) occupied the chair, and Mr. G. Hewitt (vice-president of the Association) officiated at the other end of the table.

A new Roman Catholic Church has just been commenced at Monaghan. It is Gothic in character, and Mr. Hague, R.H.A., of Dublin, is the architect, and Mr. P. Nolan, of Monaghan, the builder.

At Tuesday's meeting of the streets committee of the Middlesbrough corporation, Alderman Archibald suggested that they should take steps to introduce a clause into the Bill they are about to promote before Parliament compelling builders to leave plenty of space in dwelling-houses. Councillor Brewster quite agreed, remarking that they had had before that committee plans for houses with bedrooms only 5ft. square. Fortunately, the plans had been rejected. Further consideration of the matter was postponed.

The Cottage Hospital, Gartnavel, Glasgow, is being warmed and ventilated by means of Shorland's patent Manchester grates, the same being supplied by Mr. E. H. Shorland, of Manchester.

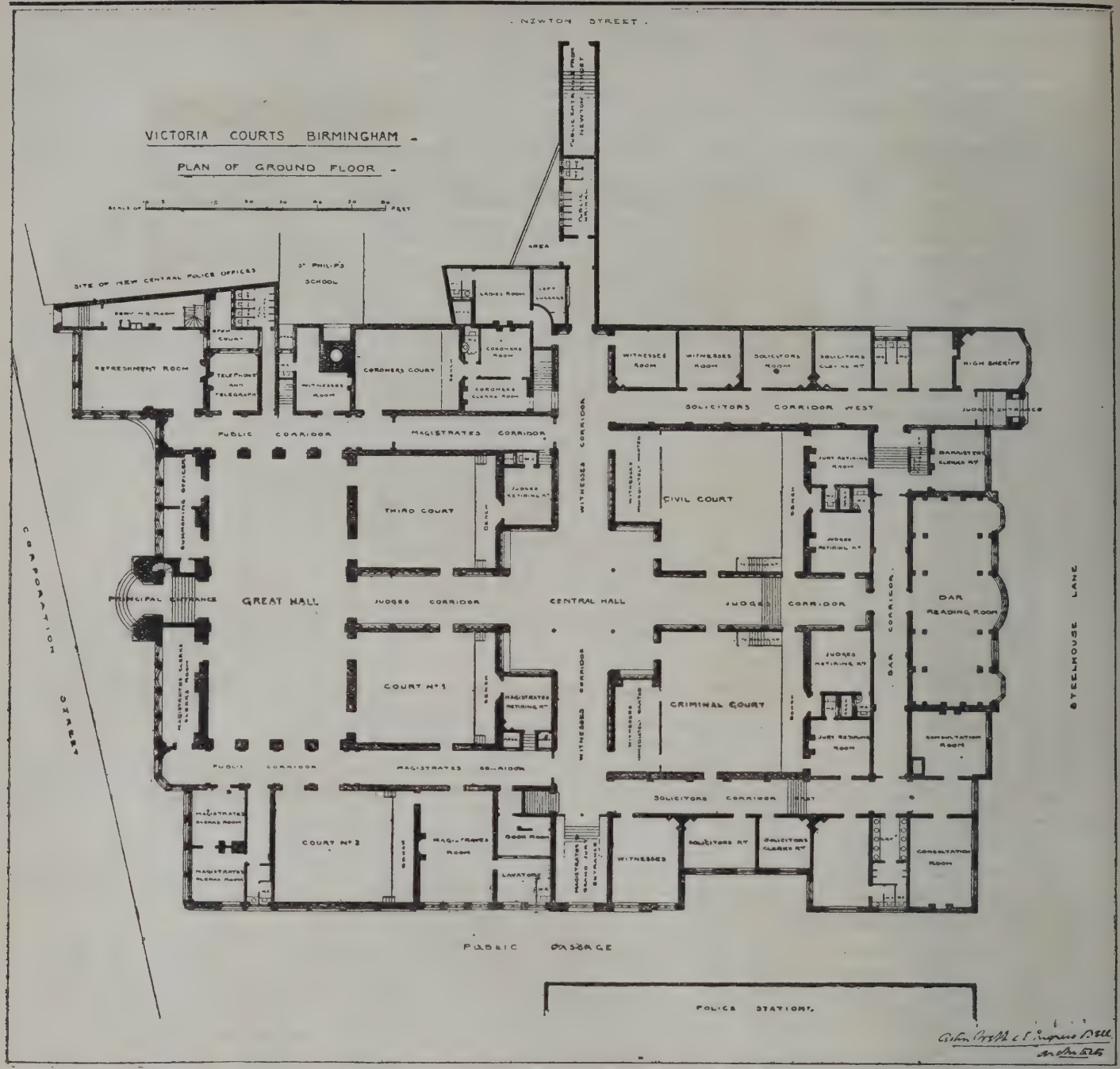
The Bill for the Demolition of Hanover Chapel, Regent-street, has been referred to a Select Committee of the House of Commons.

In reply to a correspondent who recently wrote to Mr. Chaplin calling his attention to the desirability of planting trees on the waste lands of Great Britain, the president of the Board of Agriculture has replied stating that an inquiry is now being made in the Agricultural Returns for 1891 to ascertain the present extent of woodlands in Great Britain.

The Bristol master builders had their annual outing on Thursday in last week in brilliant weather. Frome was the place visited, and after going to the parish church and to Stourton Tower, the members dined together at the George under the presidency of Mr. E. T. Hatherley, Mr. H. A. Forse occupying the vice-chair.

The premises of Mr. G. Lewis, builder, of Spital-buildings, Queen-street, Cardiff, were destroyed by fire on Wednesday week.

The south-west portion of the Bishop's Palace, adjoining Elgin Cathedral, collapsed on Monday, from a cause at present unknown. The Palace, which is one of the most interesting ruins in the country, was lately handed over by the Dowager Countess of Seafield to the town council of Elgin. The wall has for many years shown evident signs of weakness, and a considerable sum of money was expended by the town council in securing what remained of the old pile by fixing iron bars from wall to wall. The wall, however, fell inwards in a solid mass.



THE VICTORIA COURTS, BIRMINGHAM.

THE Victoria Courts have been built by the Corporation of Birmingham in accordance with an undertaking to provide assize courts when an assize was granted to Birmingham. The building was at first intended to contain the assize courts only, but the scheme grew and it was decided to give up the present police courts in Moor-street, and house them also in the new building. From the commencement, Sir Thomas Martineau, a leading solicitor in Birmingham, actively interested himself in the scheme, with the result that a site in Corporation-street was granted by the council, and with the assistance of Mr. Alfred Waterhouse, R.A., plans were obtained in competition, and those submitted by Messrs. Aston Webb and E. Ingress Bell were finally accepted. We published all the competitive designs in the BUILDING NEWS for August 13, 1886, when we gave a view of the elevation and plans of the chosen design.

The foundation stone was laid by the Queen in her Jubilee year, viz., March, 1887, and the building has been in progress ever since. It comprises two large assize courts (civil and criminal), with reading-room for the Bar, robing-room, consultation-room, and all conveniences, retiring-rooms for the judges and jury, solicitors' and witnesses' rooms. Also a third court, two police courts, and a coroner's court, with the necessary retiring rooms. A great feature in the building, both externally and internally, is the great hall, from which four of the courts open direct, and a very fine apartment, 80ft. by 40ft. In addition, there is a handsome room for the magistrates, a grand jury room on the first floor, and the necessary offices, also a refreshment block with the kitchens over. In the basement, extensive accommodation is provided for the reception and housing of the prisoners in separate cells. The façade of the building in Corporation-street shown in the view is very richly treated in a Free Renaissance, and is constructed entirely of red terracotta, supplied by Mr. J. C. Edwards, of Ruabon. The sculpture in the centre gable bears the Royal Arms, and in the flanking gables emblematic figures by Mr. Aumonier representing the arts and crafts in the trades of Birmingham. The richest portion is the central entrance porch, adorned by a statue of Her Majesty in the gable by Mr. Harry Bates, and four spandrel figures representing the attributes of Justice, designed by Mr. Walter Crane and executed by Mr. Frith. Below the Queen is a group of St. George and the Dragon. The whole building is crowned by a figure of Justice, by Mr. Frith, who also designed and executed the charming little figures on the summits of the turrets. Red terracotta was selected as being the best material for withstanding the atmosphere of Birmingham. Internally, the great hall, the court walls above the panelling, and the corridors are faced with buff terracotta by Messrs. Gibbs and Canning, of Tamworth, and the fittings and wall linings throughout are of oak. The whole of the architectural modelling was admirably carried out by Mr. Aumonier from the architects' designs. The windows of the great hall are filled with painted glass, as a Jubilee Memorial of the City of Birmingham, and were designed by Mr. H. Walter Lonsdale, and executed by Messrs. Heaton, Butler, and Bayne. The internal wood carving was done by Mr. H. Martyn, of Cheltenham. The gates and the metal fittings throughout the interior are Messrs. Hart, Son, and Peard's work. Especial attention has been given to the heating and ventilation. The foul air is extracted from all the courts by means of air-compressed vessels, and are all under separate control; fresh air is admitted into large reservoirs under the court floors, which can be warmed or cooled as required. The courts are also heated by direct radiation from radiators in the courts, while the whole of these complex arrangements are brought under easy control of the engineer in an indicating room, where automatic thermometers also register the temperature of each court. The building is lighted throughout by electricity. The general contractor of the works is Mr. John Bowen, of Balsall Heath, Birmingham, and the furniture has been executed by Messrs. Chamberlain, King, and Jones, from designs by the architects. Happily, throughout the whole of the four years, there has been no fatal accident to any of the men engaged thereon, though, unfortunately, two clerks of works, Mr. Clapp and Mr. Richards, have died. Their successor, Mr. E. W. Nightingale, has seen the building brought to a satisfactory completion. To-day we publish two views of the main corridor leading to the great hall, one view showing the entry in that fine building. The detail sketches show the doors from the lobby to the criminal court, and the entrance to the Bar library. The accompanying plan shows the building arrangements as carried out.



Door's from Lobby to Criminal Court's

H. H. MARTYN · CARVER · CHELTENHAM.

E. Chancellor del.



THE VICTORIA COURTS BIRMINGHAM

Entrance to Bar Library — Messrs Aston Webb & E. J. Bell Archts

Engineering Notes.

SOCIETY OF ENGINEERS.—An interesting visit was made by the members of the Society of Engineers on Wednesday last to the School of Military Engineering at Chatham. Among those present were Mr. W. N. Colam (president), Mr. J. W. Wilson, jun., and Mr. George A. Goodwin (vice-presidents), Mr. Henry Adams, Mr. Charles Gandon and Professor Henry Robinson (past presidents), and Mr. G. A. Pryce Cuxson (secretary). After inspecting the Geological Museum and various relics of the late Major-General C. Gordon, C.B., R.E., the party visited the Schools of Fortification, Surveying, Tactics, Construction, Printing, Lithography and Photography, the Model Sheds, Mechanical Workshops, R. E. Park, Field Works, Siege Batteries, Treble Sling Bridge, and the Submarine Mining Establishment. Experiments in the penetration of the magazine rifle, the arrangement of land mines, the demolition of rails and stockades, and the explosion of submarine mines, specially arranged for the occasion, were witnessed with much interest.

TYNE DOCK.—On Monday, loading operations were commenced at the new coal staiths provided by the North-Eastern Railway Company at Tyne Dock. The new coal staith is some 10ft. higher than any of the others in the dock, so that ships of the largest class can be accommodated alongside. The staith, as well as the sidings and railways leading thereto, have been carried out from the designs and under the supervision of Mr. Charles A. Harrison, the company's engineer, by Mr. John Jackson, contractor; and have been completed considerably within the two years originally contemplated. A large number of men, varying from 400 to 500, have been employed. The cost has been about £70,000. The company are spending a still larger sum upon a new deep-water entrance to the same dock, and this will be completed within a year from this time. The contractors for this are Messrs. Lucas and Aird, of London.

CHIPS.

Among recent purchases in London by Australians are John Linnell's picture of "Bayswater Forty Years Ago," G. D. Leslie's "Duty Towards my Neighbour," and J. C. Hook's "Flotsam and Jetsam," which have been acquired for the National Gallery in Sydney, New South Wales.

Messrs. Benhouse's timber-yard, Whitworth-street, Oxford-street, Manchester, took fire on Saturday morning. The extensive range of workshops and their contents were two-thirds destroyed, the remainder being seriously injured by fire and water. The timber in the yard was also damaged.

On Saturday afternoon, the foundation stone of a church for the new parish of Brinksway-cum-Cheadle Heath, Stockport, was laid. The cost of the vicarage is estimated at £2,000. There will be accommodation in the church for 500 worshippers, and the contract cost of the building is £4,500.

A new link of railway on the South-Eastern system, which will connect the North Kent branch with the proposed important extension of the South-Eastern Railway to Rochester and Chatham, was opened on Monday in the presence of a large number of municipal railway officials.

The polling of the inhabitants of Bethnal-green on the question of the adoption of the Free Libraries Act has resulted in its rejection by 3,098 votes to 2,996. The ratepayers of Hackney have also refused to adopt the Act.

The foundation-stone of additions to Roscoe-place Wesleyan Sunday-school, Leeds, was laid on Saturday. It is being built from designs by Mr. G. F. Danby, of Leeds, from whose plans the main building was erected nine years ago.

The town council of Huddersfield, at their last meeting, appointed Mr. John E. Hughes, of London, for many years manager to Messrs. Lucas and Aird, as superintendent of the new reservoir works in the Wessenden Valley, at a salary of £400 a year.

Messrs. Campbell, Smith, and Company have been intrusted with the redecoration of the Northampton Town Hall.

At St. John the Baptist's R.C. Church, Brighton, a new altar-piece was unveiled. It is a painting, the central figure of which is our Lord enthroned in glory surrounded by angels. The canvas is the work of Mr. Westlake, the designer of the decorations throughout the church. The total cost of the recent alterations, including stained-glass windows and organ, is about £2,000.

TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, 332, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

Cheques and Post-office Orders to be made payable to J. PASSMORE EDWARDS.

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One Pound per annum (post free) to any part of the United Kingdom; for Canada, Nova Scotia, and the United States, £1 6s. 0d. (or 6dols. 30c. gold). To France or Belgium, £1 6s. 0d. (or 33fr. 30c.) To India (viâ Brindisi), £1 10s. 4d. To any of the Australian Colonies or New Zealand, to the Cape, the West Indies, or Natal, £1 6s. 0d.

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The charge for Competition and Contract Advertisements, Public Companies, and all official advertisements is 1s. per line of Eight words, the first line counting as two the minimum charge being 5s. for four lines.

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SITUATIONS.

The charge for advertisements for "Situations Vacant" or "Situations Wanted" is ONE SHILLING for TWENTY-FOUR WORDS, and Sixpence for every eight words after. *All Situation Advertisements must be prepaid.*

Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page advertisements and alterations in serial advertisements must reach the office by Tuesday Morning to secure insertion.

NOTICE.

Bound volumes should be ordered early (price Twelve Shillings each), as only a limited number are done up. A few bound volumes of Vols. XLI., XLIX., L., LI., LIII., LIV., LVI., LVII. LVIII., and LIX. may still be had, price Twelve Shillings; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

RECEIVED.—G. and Co.—J. E. and Co.—R. W. Co.—N. in M. I. C.—B. S. F., Limited.—G. E. and Co.—W. G. and Son.—Executors of W. G.—C. C.—S. L. B.—R. and Son.

Correspondence.

ARCHITECTS' EDUCATION.

To the Editor of the BUILDING NEWS.

SIR,—Much is done, written, and said at the present day respecting the above. Most professions have a certain scholastic course open for young students to pursue and to attain the object of their ambition; but the architectural profession does not appear to have a curriculum of scholastic course for a young boy to follow, and to know that he had attained the proper standard of scholastic education which would make him worthy of the exalted name of an architect and the profession.

Pupils are taken from the elementary, grammar, and collegiate schools, as well as from the universities. To any young aspirant it is very perplexing to know when he has received sufficient education before he leaves school for the tee-square, drawing-board, &c., as he may find soon, or in a few years afterwards (which then cannot be recalled), that he had, to his regret, left school much too soon, and without sufficient knowledge and education to acquit himself honourably in the various phases of his profession and with whom he may come in contact, or that he had wasted valuable and his best time and money aimless in some high school, or to graduate in a university.

Schemes are discussed and formed for the rising generation; but there are now students in many schools that would wish the advice and directions, as well as hear the opinion and experience, of some of our leading architects in a practical and definite form, consistent and in conformity with educational institutions of the country, what standard of education is proper and sufficient, and the best time for a schoo student to enter an architect's office, and whethe it is an advantage or disadvantage to firs graduate in a university and be trained in the pro fession after. Definite information on the sub ject would be highly valuable, as well a interesting to many beside—Yours, &c.,

STUDENT.

HOT-WATER ENGINEERING.

SIR,—In glancing over "Hot-water Engineer ing" in your last issue, p. 65, this evening, find the writer, in the last paragraph of secon column, says:—"From this it will be seen tha a cold supply pipe of $\frac{1}{2}$*in. diameter* brings abou a pressure in a cylinder of $\frac{1}{2}$*lb.* for every 2ft. 4in of its height." As the area or cubic capacity o a pipe is as the *square* of the diameter, the $\frac{1}{2}$in diameter = only $\frac{1}{4}$lb., on the assumption that 1in diameter = 1lb. The circular inch is only ·785 of the square inch.—I am, &c.,

July 21. A. B.

NOT OUR OMISSION.

SIR,—In your list of tenders of the 18th inst for residential flats, Oxford-street, Mr. H. H Collins, F.R.I.B.A., and Professor Baniste Fletcher, F.R.I.B.A., joint architects, our tende of £12,980 was omitted for some reason. Ma we ask you to be good enough to make the re quired correction to the list of tenders?—We are &c., THE CO-OPERATIVE BUILDERS, LIMITED.

Burton-road, Brixton, London, S.W., July 21.

Intercommunication.

QUESTIONS.

[10591.]—**Builder's Book-Keeping.**—Could an of our readers kindly recommend a good system?—Con STANT READER.

[10592.]—**Mural Painting.**—I am just completin the restoration of a manor-house that dates back prior t the Reformation, and in removing a 4½in. brick casin that had bulged outwards a mural painting was discovere on a side wall of a fine old oak staircase; the side i formed of oak studwork filled in between with lath an plaster, on which a representation of Hercules slaying th lion in one panel, and in one above he is seen in the cloud amidst the signs of the Zodiac. To the right of the lowe figure is another panel, with Phedra apparently payin homage to what appears to be a duck. There are als several medallions with birds between other studs. Th work is for the most part skilfully executed, and wa probably done by a member of a religious fraternity t whom the place belonged before the Reformation. should be glad of some reliable information that wil explain the connection of Phedra with Hercules?—W. F. T.

[10593.]—**Chimney-Stack.**—Is a brick chimney stack 3ft. by 2ft. and 15ft. high from the earth of a hipped-roof safe? The situation is exposed, and there i no stay.—SAFETY.

REPLIES.

[10583.]—**Sketching Tour in Yorks or Lincolnshire.** — Ward and Lock's "Bridlington," 1s. should be read up, and places likely to be interesting noted. Traffic Superintendent may be the designation of the N.E.R. official at Leeds or Hull to whom to apply for a list of tours. They supply a book of coupons, to be left at the booking-office and reclaimed on resuming journey, and the user may stop at each station marked on the map of the tour he adopts, if he likes. There are several conditions: one is that, having settled at the outset which way is to be forward, the tourist must go on, and not attempt to double and dodge. The book of tickets being good for a month (or 28 days), leisure for sketching would depend on other circumstances. Buying up photographs, and a longing to fill in items missed another year is the nearest approach to sketching some of us can attain to.—H. W.

[10590.] — **Triforium** may refer to the third condition reckoning horizontally. We know of arcades supporting roof only, also of arcades supporting clerestory only. The meaning of the word need not necessarily refer to vertical subdivisions of the space between the arcade and clerestory, especially when a central mullion is so much more general than any triple arrangement—if such exists.—H. W.

A new organ is being erected in Highfield Church, Southampton, at a cost of £800. Messrs. Walker Brothers, of London, are the builders.

Sir Frederic Burton made two purchases for the National Gallery at the Cavendish-Bentinck sale. One was a picture, "The Fortune-teller," by Longhi, a Venetian master of the 18th century. The other picture is also by a late Venetian—a "Deposition from the Cross," by Tiapolo. The grand total realised by the nine days' sale at Christie's of the collection was £69,549 9s. The high prices obtained were extraordinary. The prime cost has been exceeded by nearly cent. per cent., and in many instances even larger profits have been obtained. Generally speaking, the prices realised show a return of 5 per cent. compound interest on the original outlay.

LEGAL INTELLIGENCE.

JUDGMENT SUMMONSES.—BLOWER V. FRYER.—The plaintiff said the defendant, Mr. Frederick W. Fryer, was an architect and surveyor, and keeping an office in Surrey-street, Strand. He was the proprietor of a building journal, and employed clerks. His Honour made an order of committal for 20 days for the non-payment of the amount of £14 due to the plaintiff.

CLAIM BY A SUB-CONTRACTOR.—At the Dorset Assize, before Mr. Justice Cave, Joseph Dent, a Bournemouth builder, sued Messrs. Joseph Day and Co., a Bath firm, for £68 16s. 7d. for work done and materials supplied. Plaintiffs proved being employed by defendants to do certain work for them in connection with a pumping-station in the Bournemouth Pleasure Grounds, for which Messrs. Day had the contract. Mr. F. E. Lacey, the Bournemouth borough surveyor, gave evidence in support of the claim; he had taxed plaintiff's bill, which was fair and reasonable. Defendants called no witnesses, and the Judge gave a verdict for the full amount claimed and costs.

THE ST. PAUL'S REREDOS CASE.—The House of Lords decided on Monday adversely to the promoters of the suits against the Dean and Chapter of St. Paul's in regard to the legality or otherwise of certain figures on the reredos. The Lord Chancellor said the Statute under which these proceedings were taken conferred upon the Bishop an absolute discretion, from which there was no appeal. The Bishop of London had, in the exercise of that discretion and after considering all the circumstances of the case, decided that no proceedings should be taken. The appeal must, therefore, be dismissed, with costs.

FAILURE OF AN ARCHITECT AND BUILDER.—Eugene Edward Clephan, of Cranbourne-terrace and Norton-road, Stockton, architect, surveyor, and builder, appeared for examination in bankruptcy at the Stockton Bankruptcy Court on July 15. The bankrupt said his gross liabilities amounted to £23,152 3s., of which £10,928 2s. 6d. were unsecured. He estimated his assets at £514 11s. 2d., leaving a deficiency of £10,413 11s. 4d. He succeeded to his father's business in 1868, and then had a capital of about £1,300. In 1886 he compounded with his creditors for 3s. 6d. in the pound, but he did not remember what his liabilities and assets then were. The causes of his present insolvency were losses in trade, depreciation in the value of property, and living at too high a rate. The examination was adjourned.

EMPLOYERS' LIABILITY.—At the Newton Abbot County Court on July 10th, before his Honour Judge Edge, William Charles Pering, carpenter, of 16, Princes-street, Babbacombe, an infant, brought an action under the Employers' Liability Act, through William Alfred Pering, his father, against William Brenton, builder, of Bronshill-crescent, Torquay, for £195 damages for personal injuries caused to him on the 26th March last through the negligence of himself or servants by reason of defects in the condition of a planing machine. The plaintiff, who is about 20 years of age, was in the employ of the defendant as an improver at a salary of 8s. 3d. per week. While attending to newly-introduced machinery, feeding some wood through the steam plane to defendant's father, his right hand was caught, with the result that the two first fingers were taken off and the thumb severely cut.—Mr. John Wright, engineer and proprietor of the Steam Joinery Works, Newton Abbot, said it was absolutely dangerous to work one of the machines without rollers. The jury returned a verdict for £62 8s., with costs, being equal to the average earnings of plaintiff for three years.

RAILWAY STATIONS AND THE BUILDING ACT.—CITY AND SOUTH LONDON RAILWAY COMPANY V. THE LONDON COUNTY COUNCIL.—(Before Lords Justices Lindley, Fry, and Lopes.)—In the Court of Appeal, on Friday, Lords Justices Lindley, Fry, and Lopes gave judgment in this case, which involved the right of the Electric Railway to keep its station at Newington in its present position, part of the building being erected beyond the general line of houses in Kennington Park-road. It was an appeal by the London County Council from a decision of a Divisional Court, allowing an appeal from an order of a magistrate directing the demolition of part of the station. The City and South London Railway Company were empowered by their Acts of 1884 and 1887 to construct an electric railway from King William-street to Stockwell. The company acquired land at the corner of New-street and Kennington Park-road within lines shown in the plans, and constructed thereon two shafts, in one of which was a spiral staircase, and in the other hydraulic lifts afforded access to the underground platforms. Over and adjacent to these shafts the Company erected a station, part of which was erected beyond the general line of buildings, in contravention of the Metropolis Management Act, 1862. The consent of the London County Council was never obtained. The superintending architect of the London County Council certified that the buildings of the Railway Company had been erected beyond the general line of buildings. If the company had acquired certain other lands, as they were entitled to do, adjoining those which they actually acquired, they could have erected a building equally convenient for the purposes of their undertaking within the building line. The magistrate found, as to the necessity and convenience for the company's said building, that a station building at the corner of New-street was necessary and convenient for railway purposes; that the station building, without reference to the provisions of the Act of 1862, was a reasonably convenient building; that it was, however, not necessary for the purposes of the railway that any part of the station buildings should be erected beyond the general line of buildings; and that it was convenient only in that the company saved expense by acquiring less land. The magistrate held that the company were not entitled to build as stated, and ordered the demolition of so much of the building as was beyond the general line of buildings in Kennington Park-road. The company appealed. The Divisional Court (consisting of Mr. Justice A. L. Smith and Mr. Justice Grantham) considered that the provision of the special Act which authorised the company to erect buildings necessary for their undertaking impliedly repealed the general Act, and they accordingly allowed the appeal. From this decision the London County Council appealed. Mr. Lumley Smith, Q.C., and Mr. Cunningham Glen appeared in support of the appeal, and contended that the special Act could be read consistently with the general Act. "Reg. v. Wycombe Railway Company" (L.R. 2, Q.B., 510), "Fenwick v. East London Railway Company" (20, Eq. 544), "Pugh v. Golden Valley Railway Company" (15, Ch.D. 330). The Court unamimously dismissed the appeal.

ARCHITECT OR CLERK OF WORKS.—HORROX V. FAULDER AND CO.—This action for £550 for services rendered was tried at Manchester Assizes on the 16th inst. before Mr. Justice A. L. Smith and a special jury. The plaintiff, Mr. William Horrox, is an architect residing at Stockport, and the defendant company carry on business at Heaton Norris as manufacturers of preserves and marmalades. The plaintiff said that in January, 1890, he was engaged by the defendants as clerk of works in connection with the erection of a jam factory at Heaton Norris, the architect being Mr. Harker. His salary as clerk of the works was fixed at £200 a year. After a time it was arranged that he should take complete supervision of the work, and for doing this he claimed that he was entitled to a commission of 5 per cent. on an expenditure of £15,000, less the £200 he had received in salary. The defendants, he said, promised him fair and reasonable remuneration, and he maintained that a commission of 5 per cent. was a fair and reasonable thing. In cross-examination he denied that he was really engaged as an architect, and that he was to give the company the benefit of all his experience and knowledge. He had occasionally given receipts, he said, for his monthly salary, but he did not admit that these documents precluded him from claiming commission. For the defence it was stated that the plaintiff was engaged as a kind of assistant architect, but he was called clerk of the works because of an agreement he had entered into with his former employers, which might have prevented him from accepting an appointment as an architect for the defendants openly. Mr. Harker acted as the principal architect until the works were finished, and there was no agreement which entitled the plaintiff to a commission, or to any sum beyond his salary. Mr. Lister, as representing the defendants, was asked why they reduced Mr. Harker's commission by £175. In reply, he said that the work was estimated to cost more than was originally contemplated, and that the architect was asked, and consented, to forego any commission upon the extra expenditure. Consideration was also given to the fact that Mr. Harker was relieved of a portion of his work by the plaintiff. The judge pointed out that the plaintiff was described in some of the documents put in as the company's architect, and that he had also certified for work done. In any case, the jury would probably think the amount claimed exorbitant, and agree that from £50 to £130 would be nearer the mark. The jury awarded the plaintiff £150.

EMPLOYERS' LIABILITY ACT.—In the House of Lords, on Tuesday, before the Lord Chancellor and Lords Watson, Bramwell, Herschell, and Morris, the case of Smith v. Charles Baker and Sons was decided. Smith, a navvy, who was injured by the fall of a stone from a crane whilst he was drilling a rock during the construction of the Halifax High Level Railway, obtained a verdict in the Halifax County Court for £100 damages against his employers, Messrs. Baker and Sons. That verdict was affirmed by a Divisional Court, and reversed by the Court of Appeal, on the ground that a person who voluntarily engaged in a dangerous work undertook the risks of it. Lord Bramwell thought as no negligence had been proved, the judgment of the Court of Appeal should stand; but the Lord Chancellor and Lords Watson, Herschell, and Morris were of the contrary opinion, and the original judgment of the County-court Judge was restored.

A SHEFFIELD BUILDER CHARGED WITH DECEIVING THE INSPECTORS.—At Sheffield Town Hall on Monday, before the Stipendiary, a corporation prosecution charged Mr. John Lawrence, builder, of Bristol-road, on two informations laid by Mr. C. F. Wike, the borough surveyor, with having committed a breach of By-law 53a in erecting three houses in Ratcliffe, the habitable rooms in the roof of which said buildings were not at least 8ft. in height from the floor to the ceiling, and not less than one-half the area of such rooms. The second summons charged Mr. Lawrence with a similar offence in respect of three other houses in the same street. Mr. H. Sayer, deputy town clerk, prosecuted, and Mr. A. Neal defended. Mr. Sayer explained that the by-law had been framed so that there should be a proper and fair proportion between the floor space, between the attic or room in the roof, and the roof itself, so that there might be a proper height in every part of the floor. That was to say, they should not have three feet at one part of the room, and have perhaps a bed pushed up close against that wall, which was a very insanitary arrangement. The facts of the case were rather peculiar. Mr. John Lawrence lived in Bristol-road, and is a builder, and in the latter end of 1890 he erected six houses in Radcliffe-road, which is a new road in Sharrow-vale. The houses numbered 37, 39, and 41, formed the houses complained of in the first summons, and 43, 45, and 47 were referred to in the second summons. Notice of completion was sent, and it was found that the by-law referred to had not been complied with. The roofs had been made at the wrong inclination, and Mr. Lawrence came before a sub-committee, and it was arranged that as to numbers 37, 39, and 41 the attics should be closed by filling up the skylights and removing the staircase and making good the apertures. With regard to the other three, it was arranged that the attic should be altered by boarding up a part of the apartments for the purpose of reducing the floor space. These alterations were carried out, and the borough surveyor gave his certificates of completion. In April an inspector was sent to the houses, and he found them all in their original position, as they were before the arrangement. The boarding in the attics had been taken down, the skylights were replaced, and the staircases re-erected. Mr. Neal, for the defence, argued that there was not a tittle of evidence to prove an offence. If there was an offence it must have been committed six months prior to the issue of the summons. There was nothing in this case to show that the offence had been committed within that period. The Stipendiary held there was a clear breach of by-laws committed, and fined the defendant £5 and costs in each case.

PARLIAMENTARY NOTES.

VENTILATION OF THE HOUSE OF COMMONS.—The Select Committee on the ventilation of the Palace at Westminster heard on Monday the evidence of Mr. J. Lunt, who had examined and analysed the air in two committee-rooms. He found that between eleven o'clock and four the quantity of carbonic acid rose from 4·8 per 10,000 parts of air to 8·78; and that the number of bacteria and other organisms rose from 25 to 144. The number of persons present when the room was most crowded was 110. This conditions of things was much better than what was found in many places of amusement, and even in some mechanically-ventilated schools. Some plans for deodorising the sewage in the main sewer of the County Council were submitted to the committee, who have now finished taking evidence, and met yesterday (Thursday) for the consideration of their report. It is believed that they will recommend alterations in the existing apparatus involving an expenditure of about £6,000, their principal suggestions being the enlargement of the air inlets and the provision of gratings and double windows in the committee rooms. The committee are reported to be strongly of opinion that the impurities at present noticeable in the atmosphere come from outside the House.

The City Court of Common Council will proceed, at their meeting on Thursday next, to elect a City surveyor. We understand that, owing to the change in position and emoluments recently made in the office, several of the candidates have withdrawn their applications. It is highly probable that Mr. Andrew Murray, who has been for many years chief assistant to the two last City architects, and by whom the chief work of the post has been carried out, will be appointed.

A new organ, built by Mr. A. Kirkland, of London, at a cost of £300, was opened in Byrkeley-street Chapel, Burton-on-Trent, on the 15th inst.

WATER SUPPLY AND SANITARY MATTERS.

CHARING CROSS.—The Vestry of St. Martin in the Fields are constructing an underground convenience at Charing Cross, immediately adjoining the statue of King Charles the First. The erection will provide 28 urinals, 12 w.c.'s, 2 lavatory basins for men, and for women, 5 w.c.'s and 2 lavatory basins. The usual offices are also provided for caretakers, with storeroom adjoining. The whole of the interior faces are to be lined with ivory-white glazed bricks with special coloured dado, the front walls of w.c.'s being finished with a glazed Doulton-ware cornice. All the woodwork will be of oak, the floors being paved with Rust's vitrified mosaics. Light is obtained by means of Hayward Brothers and Eckstein's prismatic lenses fixed overhead. Through ventilation will be secured by open grids, the main staircases also serving as inlets. An additional means of extraction is provided for in the base of the central gas column. The drainage has a fall of 1 in 30. The general builder's work is being carried out by Messrs. John Allen and Sons, of Kilburn. The ornamental lamp columns are supplied by the Coalbrookdale Company, and the prismatic lights by Messrs. Hayward Brothers and Eckstein. The whole of the sanitary fittings are being supplied by Messrs. Doulton and Co., of Lambeth. The w.c.'s will be fitted with Doulton's Simplicitas washdown pedestal closet, flushed by Doulton's three-gallon Paisley valveless siphon flushing cistern. A special feature is made of the urinals by providing an open, semicircular-backed urinal, in one piece of strong, white, enamelled pottery, with highly-glazed gutter to match, there being no basin or attachment whatever. St. Anne's marble is used for finishing the backs, divisions, and capping. Automatic tanks of St. Anne's marble, with plate-glass fronts and internal fittings of polished copper, will supply the flush to the urinals. Lavatory basins will also be provided for both departments. The cost of the works will be £4,065. The structure has been designed by Mr. Chas. Mason, Assoc.M.Inst.C.E., the surveyor to the vestry, under whose supervision the works are being carried out, Mr. W. Meats acting as clerk of works.

CARSHALTON.—An inquiry has just been held at Carshalton by Mr. Samuel Joseph Smith, C.E., one of the inspectors of the Local Government Board, into a proposal of the Carshalton local board to borrow £25,000 for works of sewerage and sewage disposal. The scheme was opposed by an influential committee of ratepayers. The chairman of the committee (Mr. J. W. F. B. Taylor, lord of the manor), and the hon. sec. (Mr. E. H. Bourchier) were present. Mr. Barnard Lailey, instructed by Messrs. Cave and Co., of 4, Fenchurch-street, E.C., appeared to oppose the scheme. Evidence in support of the scheme having been given by Mr. Heward, the surveyor to the local board, and Mr. Bruges, C.E., Mr. Urban Smith, C.E. stated that a gravitation scheme was possible, and that the costly pumping works proposed were unnecessary. The report of the inspector will be issued in due course.

OUNDLE WATERWORKS.—The Local Government Board have given their sanction to a scheme for the water-supply of Oundle, prepared by Mr. W. H. Radford, C.E., of Nottingham. The decision as to the sewerage scheme is expected shortly.

VYRNWY WATER FOR LIVERPOOL.—A supply of water reached Liverpool from Lake Vyrnwy for the first time on Friday. The works have been exactly ten years in course of construction, for the first stone of the works was laid by the late Earl Powis on July 18, 1881. Even now the permanent tunnel under the Mersey at Fiddler's Ferry has to be driven, the supply being through a temporary pipe laid on the river bed. The original estimate for the scheme was £1,502,094, but the actual cost will be about 2¼ millions. Mr. G. F. Deacon has been the engineer-in-chief.

A new surgical wing, which has been added to the National Hospital for the Paralysed and Epileptic in Queen-square, was opened by the Duke of Westminster on Saturday. Mr. Henry Currey was the architect of the wing, which raises the number of beds in the institution from 170 to 190.

The death occurred on Sunday week, at the age of 76, of Mr. William Baker, late sanitary inspector and superintendent of works for the Borough of Stafford. Mr. Baker was first appointed, over 14 years ago, manager of works, and subsequently sanitary inspector. For many years Mr. Baker was employed in carrying out important railway and other works. Under the late Mr. Brassey, he was engaged in the construction of the Trent Valley Railway. The cutting of the Caledonian Canal, the laying out of Sefton Park, Liverpool, the construction of reservoirs of importance were amongst the numerous great works in which he participated.

Our Office Table.

As might have been expected, the equal division of the Royal Commissions on Westminster Abbey on the best side for the proposed mortuary chapel has given rise to a warm newspaper controversy. Sir Henry Layard set the ball rolling by a letter in the *Times*, in which he vehemently protested against the adoption of the Refectory site. Mr. Alfred Waterhouse, R.A., has replied, pointing out that the alternative site, the space south of the Chapel of Henry VII. could only be approached from the Abbey by a cloister awkwardly threading its way between the flying buttresses of the Chapter House, and would shut out for ever from view the lower portions of that building, whereas the way to the Refectory site from the Abbey is already made, and is one of the most noble and beautiful that can be conceived—the west walk of the cloisters. While on the Refectory, we should have, Mr. Waterhouse contends, "a structure which would not alter the present outward appearance of the Abbey nor the ancient plan of the monastery in the slightest, which we should not see at all until we were beneath its vaulting. On the south-east site we should have a building we might well be proud of, but which would add a new feature to the exterior of the Abbey, and would be a serious competitor with Henry VII.'s Chapel itself." Both schemes have, he admits, their merits, and he hopes that a want of unanimity on the part of the Commissioners will not prevent one or other of them being speedily adopted.

SIR WILLIAM FETTES DOUGLAS, LL.D., the President of the Royal Scottish Academy, died at Newburgh, on Tuesday, from the effects of a chill taken while sketching on Tayside. He was born in March, 1822, his father, a bank accountant, being an excellent amateur water-colour artist, and the son, after ten years' service in a bank, devoted himself to art. He had no academic learning, his knowledge of painting being, for the most part, self-acquired. When twenty-one years of age, his first works were exhibited at the R.S.A., and from that time forward he became a constant exhibitor there, first with *genre* subjects, and latterly with water-colour landscapes. Recognition of his powers was marked and rapid at the Scottish Academy. Elected an Associate in 1851, he became an Academician three years later, served as secretary in 1869-70, and became President in 1882, on the death of Sir Daniel Macnee, when he was knighted. From 1877 till 1882 he acted as curator of the Scottish National Gallery. He rarely exhibited at Burlington House. Sir W. F. Douglas was a man of various accomplishments, a sound antiquarian, and a good linguist. He wrote little or nothing on art, but his addresses and speeches were original and racy. His portrait, painted in 1883 by Mr. G. Reid, R.S.A., and presented to the Academy, hangs in the library of that body.

THE Leicester Borough Extension Act of 1891 has now received the Royal assent, and it comprises added areas to the extent of 5,504 acres, and an additional population of nearly 33,000, being the populated parts of eight surrounding parishes and the whole of the Belgrave Local Board district. The total area of the extended borough will be 8,534 acres, and the population about 175,000. The whole of the powers in the Bill have been obtained, which include poor-law administration, registration of births and deaths, &c. Mr. E. G. Mawbey, C.E., the borough surveyor, as engineer, has been one of the chief workers in the preparation and promotion of the extension scheme. The corporation take over the added areas on the 31st of October next, and they have undeataken to carry out within two years the storm outfall drainage scheme, which has recently been prepared by the borough surveyor and adopted by the council, at an estimated cost of £71,000. Also to efficiently deal with their sewage within six months, and to dredge the river Soar within the limits of the added area in twelve months from the passing of the Act.

THE site of the Church of St. Olave, Old Jewry, was offered by auction by Messrs. Edwin Fox and Bousfield, acting under the orders of the Ecclesiastical Commissioners for England, on Wednesday, at the Auction Mart, Tokenhouse-yard. The sale particulars stated that the site was freehold, and covered an area of 2,630 superficial feet, with a frontage to the Old Jewry of 39ft., and extending to a depth of 62ft., of which a small part was required by the Corporation for widening the street and court at the side. The remainder of the site of the church was reserved, under the Order in Council by which the union of the benefice with St. Margaret's was accomplished, for the erection of a rectory-house for the united parishes. The biddings began at £15,000, and advanced slowly up to £22,400, at which the property was sold. The church, now to give place to City offices, is one of the least interesting of Wren's edifices. All the fittings and monuments, including a bust by Nollekens of Alderman Boydell, the fine-art publisher, were removed four years ago to St. Margaret's Church, Lothbury.

LONDONERS have become familiarised during the last ten or twelve years with steam derricks, by which the work of erection of lofty buildings is greatly expedited, and the employment of scaffolding proportionately reduced. In a gigantic block of offices now in progress at Denver, Col., for the Equitable Insurance Co. of New York, the idea is pushed a step further, so as to economise time, labour, and the use of temporary plant more fully. The building in question will cost about £300,000 sterling, and will be the most expensive edifice west of Chicago. The dimensions are 125ft. by 400ft.; the time allowed for completion is very short, as it must be opened on April 1st, 1892. Messrs. Andrews, Jaques, and Rantoul, of Boston and Denver, are the architects, Mr. William M. Scanlon being the manager of construction, and for the work of erection a corporation has been specially organised under the title of the Denver Equitable Building Company. When the work had been set out, six Norcross derricks were erected on the site just within the outer line of the building, and having booms long enough to extend 25ft. beyond the walls on each side, the whole being capable of covering the entire plot. These derricks are mounted on heavy trestle work which raise them 42ft. above the cellar floor, and the booms are so high that it will be unnecessary to remove the derricks before the fifth story is reached. The masts of the derricks are of Oregon pine, 16in. square, and 75ft. long, and the booms are each composed of two pieces of Oregon pine, 16in. by 18in., and 52ft. long. The back stays are of Norway iron, 1in. 6in., and the iron suspension rods extending from the tops of the masts to the booms are of 2in. round iron. The booms are, as usual, each provided with a trolley, by means of which the material may be carried to a horizontal direction, and the derrick and trolley are turned in the customary manner by men who stand on platforms on the masts. The hoisting cables extend to the engine-house, which contains six hoisting engines, one for each derrick, each engine being 40H.P., with a capacity of 7,000lb. for rope. Each engine is fitted with an electric call bell and indicator for signalling purposes. The first two stories of the building are to be faced with Colorado granite, and the upper portion with brickwork. The interior construction will be of steel beams and fireproof tile arches.

A VALUABLE report has been laid before Parliament by Sir Henry Roscoe, M.P., in which he gives the results of some experiments made by him with regard to the possibility of freeing the air supply of the debating chamber of the House of Commons, not from particles of dust and fog, which has already been accomplished, but from the floating germs which are constantly present in the air. The results of the experiments as a whole proved that the filtration of the air on a large scale could practically remove all the floating aërial germs. Hesse's method, by which the air is drawn through a long tube coated internally with sterilised gelatine, gave the best results in filtration. The effect of filtration upon the air within the chamber itself has yet to be ascertained, and it would be interesting to continue the experiments from that point of view.

THE members of the local board of Penmaenmawr are as cautious as Scotchmen in expending the ratepayers' money. At their last meeting the question arose of the buildings to be erected at the new cemetery, and they decided to offer the magnificent premium of £3 "for the best design for a cemetery chapel to hold 150 people." It was not determined whether this tempting prize shall merge in the architect's

commission, or whether the clerk to the local board shall pay it over in a lump sum or by instalments to the fortunate competitor. Certainly the members of the Penmaenmawr Local Board are liberal folk.

It is stated in the Parliamentary Report on the British Museum just issued that the trustees have urged on the First Commissioner of Works the desirability of extending the northern boundary line of the grounds of the Natural History Museum at South Kensington, so as to admit of the future development of the building, by securing to the Museum some portion of the land, situated between the Imperial Institute-road and the present boundary, recently acquired by the Government from the Commissioners of the Exhibition of 1851, and they have been assured that full consideration will be given to their views before a final appropriation is made of the land in question.

The chief donations to the British Museum at Bloomsbury last year included—from Lord Savile, an archaic terracotta antefix, from Lanuvium; from the Earl of Derby, a series of stone and flint implements from Denmark, &c.; from the Earl of Lonsdale, a large ethnographical collection from North-West and Arctic America; from the Hon. Robert Meade, choice specimens of Chinese egg-shell and other porcelain; from Lady Charlotte Schreiber, watches and mediæval antiquities; and from Mr. A. W. Franks, specimens of porcelain of different countries, in augmentation of the Franks collection, and various antiquities. The past year at the library has been remarkable for acquisitions of celebrated Bibles, including the Egenolff German Bible, Frankfort, 1534, of great rarity. An important series of antiquities has been purchased from the Earl of Carlisle; the collection of engraved gems, which forms the most important part of the purchase, was made by Henry Howard, fourth Earl of Carlisle (1694-1758). According to the report of Mr. A. W. Franks and Mr. A. S. Murray, the collection is of importance, not only on account of its fine cameos and intaglios of undoubted authenticity, but also because it contains several specimens with reputed artists' signatures which have been the subject of controversy among archæologists.

During the past week the valuable series of tiles, found during the late excavations in the churchyard of Kenilworth, the site of the famous Priory, have been placed in a permanent position for security. While the work was in progress the tiles were carefully removed to the old "Tantarra," where they have since remained. At the suggestion of Mr. T. W. Whitely, architect, of Coventry, and with the consent of the vicar and churchwardens, they have now been securely fixed by Messrs. E. Smith and Son, of Kenilworth, in the walls of the entrance porch, in close proximity to the Norman arch for which the church is celebrated. Owing to the variety of floral, geometric, and heraldic designs embossed on the tiles, no system or pattern could be followed in fixing them on the walls, to which they form a unique dado. The top row is bordered by a beading, and on the south wall a polished brass plate will be placed with an inscription stating where they were found, and the date of their discovery. In their present position they will be easily accessible to visitors, and will be secure from pillage on the part of relic-hunters.

At Sheffield, on Wednesday night, a steeplejack named Gilbert met with a shocking death. He was engaged in repairing the steeple of St. Matthew's Church, Carver-street, and while clinging to the weathercock it gave way, and he fell from a height of 150ft. into the street. Death was immediate. The accident was witnessed by crowds of people who were watching.

A working bricklayer of Chelmsford, named George Mead, and his two sons, who are also bricklayers, have received an intimation that they have become entitled to property, valued at about £8,000, left by a brother of George Mead, who recently died in Australia. He went to Australia many years ago, and amassed a small fortune as an hotel proprietor.

St. Mary's, Wolverhampton, was reopened after interior restoration last week. The woodwork has been re-decorated by Messrs. Lewis and Swindley, of Wolverhampton, the organ has been improved by Messrs. Nicholson and Lord, of Walsall, and a new mosaic floor laid in the chancel by Messrs. Maw and Co., of Jackfield, Shropshire.

Trade News.

WAGES MOVEMENTS.

Greenock.—The masons of Greenock have received an advance of ½d. per hour, which brings the rate of wages up to 8d. By agreement between the masters and men that rate of wages will continue for a year.

St. Helen's, Lancs.—A hitch occurred as to the choice of an arbitrator between the masters and men, but the Mayor has been accepted by both sides in that capacity, and on Monday afternoon heard deputations of both masters and men. His decision has not yet been announced.

CHIPS.

The old Custom-House in Greenmarket, Dundee, a fine example of the architecture of the 16th century, is at present being demolished by the Police Commissioners of that city. The demolition is rendered necessary in consequence of the building being in the line of the new street to be named Whitehall-crescent.

On Sunday last a new clock was started at Astley Bridge Church, Bolton, by the donor, Mrs. John Ashworth, in the tower of the church. It strikes the hours, chimes the Westminster quarters, and shows time on three dials. It will prove a great boon to the inhabitants, and will form a standard for the timekeeping of the neighbourhood. Messrs. John Smith and Son, Midland Clock Works, Derby, carried out the work, and they have also just completed a large clock on the Victoria Pier, Douglas, Isle of Man.

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TENDERS.

*** Correspondents would in all cases oblige by giving the addresses of the parties tendering—at any rate, of the accepted tender: it adds to the value of the information.

Balderstone.—For alterations at St. Leonard's Church, Balderstone. Messrs. Stones and Gradwell, 10, Richmond-terrace, Blackburn, architects:—
Simm, Israel, New Chapel House, Balderstone.

Bellaggio.—For alterations and additions to bungalow at Furzefield Chase, Bellaggio, Surrey, for Mr. W. Stopher. Mr. Walter J. Ebbetts, F.R.I.B.A., Savoy House, 115, Strand, W.C., architect:—
Head Bros. £830 0 0

Blackburn.—For new stables and coachman's house, &c., for Mr. Eli Heyworth, J.P., Blackburn. Messrs. Stones and Gradwell, architects:—
Highton, John, and Son, Bridgewater-street, Blackburn.

Blackburn.—For new studio, &c., for Mr. E. S. Johnson, The Myrtles, Revidge-road, Blackburn. Messrs. Stones and Gradwell, architects:—
Marshall and Dent, Limbrick, Blackburn.

Bow.—For alterations at the King's Head, Bow-road. Mr. R. A. Lewcock, 88, Bishopsgate-street Within, architect:—

Edwards and Medway	£1,420 0 0
Todd	1,347 0 0
Walker Bros.	1,293 0 0
Courtney and Fairbairn	1,253 0 0

Bristol.—For new print-loft and store at Temple-gate, Bristol, for Messrs. J. Hare and Co:—
Beaven, A. J. (accepted)... ... £1,770 0 0
(Lowest of three invited tenders.)

Bristol.—For Conservative hall and club at Bedminster, Bristol. Mr. W. V. Gough, Bristol, architect:—

Humphreys, G.	£3,964 0 0
Hatherley, E. T.	3,950 0 0
Eastabrook and Sons	3,946 0 0
Brock and Sons	3,900 0 0
Church, W.	3,794 0 0
Cowlin and Son	3,745 0 0
Beaven, A. J. (accepted)	3,690 0 0
Plumbing for the above:—	
Woodward, E.	£337 0 0
Holbrook, J.	291 10 0
Tuckey, G. F.	251 15 0

(All of Bristol.)

Bristol.—For warehouse, offices, &c., at Canons Marsh, Bristol, for Messrs. Cripps and Co. (Limited). Mr. F. W. Wills, Bristol, architect:—

Eastabrook and Sons	£3,723 0 0
Brock, W., and Sons	3,634 0 0
Church, W.	3,544 0 0
Hatherly, E. F.	3,449 0 0
Durnford, J., and Son	3,340 0 0
Cowlin, W., and Son	3,135 0 0
Beaven, A. J. (accepted)	3,130 0 0

Bristol.—For fencing-in Victoria Park, for the Sanitary Committee:—
Priest and Sons (accepted) £800 18 9
[Tenders received ranged from £4,000 to £1,000; city surveyor's estimate, £7,787.]

Bristol.—For laying out Victoria Park for the sanitary committee:—
Krauss, A., Bristol (accepted) ... £463 0 0

Brondesbury.—For alterations at the North London Hotel, Brondesbury. Mr. R. A. Lewcock, 88, Bishopsgate-street Within, E.C., architect:—

Voller	£935 0 0
Courtney and Fairbairn	915 0 0
Goodall	820 0 0
Todd	797 0 0

Cardiff.—For the erection of new waterworks depot, Penarth-road, for the Cardiff corporation. Mr. J. A. B. Williams, M.I.C.E, engineer. Quantities by Messrs. Veall and Sant, Cardiff:—
Davies, D. J., Cardiff (accepted)... £2,799 0 0

Cardiff.—For Higher Grade School extensions, Cardiff. Messrs. Seward and Thomas, Queen's Chambers, Cardiff, architects:—

		Amended tenders.
Purnell, L. ...	£14,100 0 0 ...	—
Shepton and Co.	13,785 0 0 ...	—
Davies, D. J. ...	13,750 0 0 ...	—
Thomas, W. ...	13,540 0 0 ...	—
Bowers, W. ...	12,793 0 0 ...	—
Davies, D. ...	12,740 0 0 ...	—
Hopkins, J. ...	12,700 0 0 ...	—
Symonds, W. ...	12,572 10 0 ...	—
Gough, T. ...	12,474 0 0 ...	£10,256 1 8
Turner and Sons	12,078 0 0 ...	10,169 0 0
Dunn, C. C. ...	11,975 0 0 ...	9,877 11 4
Burton and Co.	11,957 0 0 ...	10,131 0 0

(All of Cardiff.)

Chesham.—For the erection of a house at Chesham. Mr. Wm. Huckvale, Tring, architect:—
Darvill, R., Chesham (accepted)... £1,170 0 0

Coventry.—For paving the footpath of Warwick-road, 900sq.yds. in extent, for the city council:—
Boon, W., Coventry (accepted), 5s. 1d. per yard.

Cripplegate, E.C.—For renovating St. Giles's Church, Cripplegate:—

Dove Brothers	£275 0 0
Larke and Son	174 0 0
Brass and Son	155 0 0
Duplock Brothers (accepted) ...	130 0 0

Devonport.—For rebuilding the northern boundary wall of the Royal Naval Burial Ground, for the town council:—
Smith, G. H, jun., Plymouth* ... £207 15 0
* Accepted.

Hammersmith.—For erecting orphanage at Brook-green, Hammersmith. Mr. John G. Hall, architect:—
Brown, J., and Son (accepted) ... £7,200 0 0

HANLEY.—For additions to works, Eastwood, Hanley, for Mr. E. Cotton. Messrs. R. Scrivener and Sons, Hanley, architects:—

Breeze, J., Stoke	£580	0	0
Godwin, T., Hanley	503	0	0
Bennett, N., Burslem (accepted)	485	0	0
Hall, A., Hanley	465	0	0

HANLEY.—For machinery at Flint Mill, Cliffe Vale Sanitary Works, for Mr. T. W. Twyford. Messrs. R. Scrivener and Sons, Hanley, architects:—

Boulton, Wm., Burslem	£4,284	0	0
Silvester, J., Newcastle	3,670	0	0
Woodhouse and Rawson	3,575	0	0
Hartley, Arnox, and Fanning, Stoke-on-Trent (accepted)	3,303	0	0

HANLEY.—For Twyford's Mill. Messrs. R. Scrivener and Sons, architects:—

Gallimore, J., Newcastle	£3,100	0	0
Tomkinson and Betteley, Longton	3,000	0	0
Inskip, Longton	2,994	0	0
Godwin, T., Hanley	2,900	0	0
Cooke, W., Burslem	2,871	0	0
Ellis, G., Hanley	2,851	10	0
Bennett, N., Burslem (accepted)	2,759	0	0
Clarke, J. T., Hanley	2,704	0	0
Dunn, G. C., Burslem	2,700	0	0
Barlow, G. A., Newcastle	2,660	0	0

HARBORNE, BIRMINGHAM.—For building junior schools for 300 children at the rear of the Central Board School in Crocket's lane:—

Harley, J., and Son, Smethwick*	£2,656	0	0

* Accepted.

HIGHGATE.—For sundry alterations, decorations, &c., to Archway Wesleyan Chapel, Highgate. Mr. Elijah Hoole, 16, Finsbury-circus, E.C., architect:—

Williams	£628	0	0
Houghton, E., and Son	573	0	0
MacFarlane	544	0	0
Kerry (accepted)	517	0	0

HIPSWELL, YORKS.—For the restoration of the parish church:—

Keswick, York	£1,296	0	0
McKenzie, B., Catterick	1,250	0	0
Wilson, W., and Son, Headingley	1,124	0	0
McKenzie, G., Catterick	1,058	7	0
Harwood, Mansfield (accepted)	895	0	0

[Architect's estimate, £900.]

KENTISH TOWN.—For sanitary alterations, &c., at Prince of Wales's-road, for Mr. F. W. Rowney. Mr. Walter J. Ebbetts, F.R.I.B.A., Savoy House, 115, Strand, W.C., surveyor:—

J. Sayer (accepted).

LAMBETH.—For pulling down and rebuilding the Jolly Gardeners' Tavern, Princes-road, Lambeth. Mr. R. A. Lewcock, 88, Bishopsgate street Within, architects:—

Voller, F. (accepted)	£5,447	0	0

HORNSEY.—For sundry works of alteration, painting, &c., to Crouch End school, for the Hornsey School Board. Mr. Thomas Chatfeild Clarke, 63, Bishopsgate-street Within, architect:—

Woodward and Co.*	£1,540	0	0
Killby and Gayford	1,495	0	0
Scrivener and Co.	1,451	0	0
Lawrance and Son	1,431	0	0
Matlock Bros.	1,423	0	0
Smith, J., and Son	1,259	0	0
McCormick and Son	1,242	0	0
Houghton, E., and Son	1,169	0	0
Nightingale	1,116	0	0
Ashby Bros.	1,083	0	0

LEAMINGTON.—For re-seating and putting new windows into Spencer-street Congregational Chapel, and adding schools. Mr. V. Scruton, of Birmingham, architect:—

Bowen, R., Leamington	£2,592	0	0
Kimberley, Banbury	2,307	0	0
Parnell, J., and Son, Rugby	2,048	0	0
Barnsley, J., and Sons, Birmingham	1,998	0	0
Smith, G., Milverton	1,949	0	0
Fell, J., Leamington (accepted)	1,915	0	0

LONDON.—For alterations at the Union Tavern, Great Portland-street. Mr. R. A. Lewcock, 88, Bishopsgate-street Within, architect:—

Davies	£205	0	0
Courtney and Fairbairn	195	0	0
Lundy	186	0	0
Lister	185	10	0
Clarke and Mannoch	179	0	0
Saunders	160	0	0

Gasfittings:—
Winn (accepted).

LONDON.—For modernising the Surrey Tavern, Wandsworth common, for Mr. J. T. Bonner. Mr. Dear, M.S.A., 117, Great Russell-street, Bloomsbury, architect. Quantities by Mr. J. Leaning, 11, Poultry, E.C.:—

Burman and Sons	£1,170	0	0
Gould and Brand	1,050	0	0
Drew and Cadman	1,030	0	0
Sharpe	990	0	0
Lascelles	940	0	0

LONDON.—For alteration and repairs at the City of London Schools, Victoria Embankment, E.C., for the Corporation of the City of London. Mr. A. Murray, architect. Quantities by Messrs. Franklin and Andrews:—

Gentry	£3,686	0	0
Nightingale, B. E.	3,505	0	0
Philps and Bisiker	3,339	0	0
Lamble	3,276	0	0
Ledstone	3,145	0	0
Chappel	2,829	0	0
Lang	2,725	0	0
Mowlem	2,713	0	0
Lark	2,589	0	0
Holliday and Greenwood	2,535	0	0
Harrison and Spooner	2,487	0	0

LONDON.—For the erection of four houses in Coburn-road, Mile End. Messrs. Hammack and Lambert, architects:—

F. and F. J. Wood	£1,897	0	0

(No competition.)

LONDON.—For painting, &c., to the Central Poultry and Provision Market, Smithfield, for the Corporation of the City of London. Mr. A. Murray, architect:—

Anderson	£8,730	0	0
Heeps	5,460	0	0
Lister	4,970	0	0
Mason	4,944	0	0
Harrison and Spooner	4,647	0	0
Nightingale, B. E.	4,576	0	0
Taylor	4,387	0	0
McCormack	4,342	0	0
Wilmot	3,352	0	0

LONG REACH, DARTFORD.—For hot-water boiler, &c., at the hospital ships, for the Metropolitan Asylums Board. Messrs A. and C. Harston, 15, Leadenhall-street, E.C., architects:—

Moss, R. W.	£462	0	0
Clements, Teakes, and Co.	270	0	0
Rosser and Russell, Limited	180	10	0
Wenham and Waters, Limited	180	0	0
Fraser, T., and Son	144	0	0
Kinnell, C. P., and Co.	138	10	0
May, J. and F.	130	0	0
Constructional Ironworks Company, Limited, Dace-road, Bow, E.*	105	0	0

* Accepted.

MARKET DRAYTON.—For building a cottage hospital at Kilns Bank:—
Gilmore and Co., Newcastle-under-Lyme (accepted).

MELKSHAM.—For the erection of a villa residence at Melksham, Wilts, for Mr. Henry Sawtell. Mr. J. A. Randell, M.S.A., Devizes, architect:—

Brown, G., Devizes	£1,990	0	0
Bezant and Bigwood, Melksham	1,625	0	0
Linzey, Trowbridge	1,475	0	0
Amery and Mortimer, Trowbridge	1,445	0	0
Davis and Son and Hurn Bros., Melksham (accepted)	1,249	0	0

MELTON MOWBRAY.—For the renovation of Hudson's Bedehouse. Mr. Jeeves, architect:—

Wartnaby	£598	0	0
Fast	560	0	0
Barnes	548	0	0
Clarke (accepted)	540	0	0

NORMACOTT.—For three houses at Normacott, for Mr. W. T. Parker. Messrs. R. Scrivener and Sons, Hanley, architects:—

Minks, T., Fenton	£1,975	0	0
Barlow, G. A., Newcastle	1,800	0	0
Inskip, H. and R., Longton	1,609	0	0
Tomkison and Betteley, Longton*	1,579	0	0

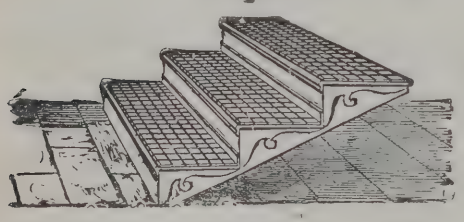
* Accepted.

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Bletchley
Bolton
Bolts Bridge
Bombay, India
Bow
Bowdon Central
Brick Lane
Bristol
Broadfield
Broad Street
Broadstone, Dublin
Burdett Road
Burscough Junction
Burton
Bury
Borough Road
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Canonbury
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Chequerbent
Clayton
Clifton
Clitheroe
Crewe
Crooked Billet Level Crossing
Cross Lane
Crumpsall
Cullercoates
Cannon Street
Dalston
Daubhill
Daybrook
Denholme
Derby
Droylesden
Drighlington
Dudley
Dudley Port
Dundee
Ealing Common
Ealing Terminus
Earl's Court
Edgware Road
Failsworth
Farringdon Street
Farrington
Fenchurch Street
Finchley Road
Firsby
Forest Gate
Forest Road Level Crossing
Fulham
Geedley
Gloucester Road
Gower Street
Grantham
Greenwich
Hackney
Haggerston
Hammersmith
Heaton Park
Hereford, Barr's Court
Highbury
Highdran Road, Wallsend
Hollinwood
Holyhead
Homerton
Horley
Hounslow
Hounslow Barracks
Keighley
Kemble Junction
Kenilworth
Kensal Green
Kentish Town
Kilburn
Kilsby
King's Cross
King William Street
Langley Green
Latimer Road
Lea Bridge
Leamington
Leman Street
Leyland
Leyton
Leytonstone
Lichfield
Limehouse
Lincoln
Little Ealing
Liverpool Road, Manchester
Liverpool Street
Llandudno
Long Buckby
Loudoun Road
Ludgate Hill
Mark Lane
Maidstone
Manchester
Manchester, Exchange
Manchester Road
Mansion House
Mildmay Park
Millhill
Milverton
Monkwearmouth
Moorgate Street
Monument
Newcastle-under-Lyme
New Cross
Newport
Newton Heath
North Brentford
North Bridge
Northampton (Castle Station)
Nottingham
Oldbury
Old Ford
Oldham (Mumps)
Paddington
Parsons Green
Patricroft
Penzance
Pickle Bridge
Plaistow
Pleck
Plymouth
Poplar
Portsmouth
Prestwich
Radcliffe Roade
Salisbury Road
Seething Lane
Shadwell
Sheffield
Shoreditch
Sloane Square
Snow Hill, Birmingham
Slough
Soho
South Bromley
South Kensington
Southport
Speke
Spring Grove
Stechford
Stepney
Stoke
Stourbridge
Stratford
Stretford
Sudbury
Sunderland
Sutton
Sutton Coldfield
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Thornton
Torquay
Tower of London
Tring
Tynemouth
Upton Park
Victoria
Victoria Park
Walham Green
Wallsend
Walsall
Waterloo, Liverpool
Weaste
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Westbourne Park
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Westminster
Whitchurch
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Widnes
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Wood Green
Wormwood Scrubbs
Worsley
Wolverhampton
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Barracks.

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Dublin, Ship Street
Dublin Royal Barracks
Dundalk
Dublin Castle Police Barracks
Eastney
Fleetwood
Fulwood
Halifax
Hamilton, Glasgow
Hulme
Knightsbridge
Leicester, Glen Parva
Manchester
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Birmingham, Cowper Street
Clapham
Colchester
Forest Gate
Hanway Place
Harrow
Haverstock Hill Orphan Working School
Jamaica Level
Leyton, Grammar School
Leyton, Church Road
Newhaven
North Bow
Old Ford
Poplar, Byron & Bright Streets
Southsea, Church Path
Southsea, Omega Street
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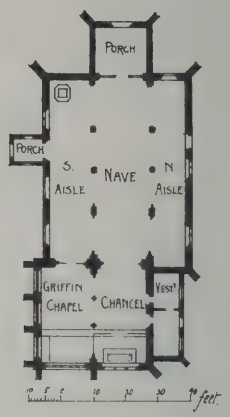


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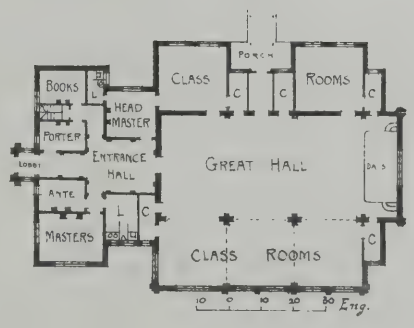
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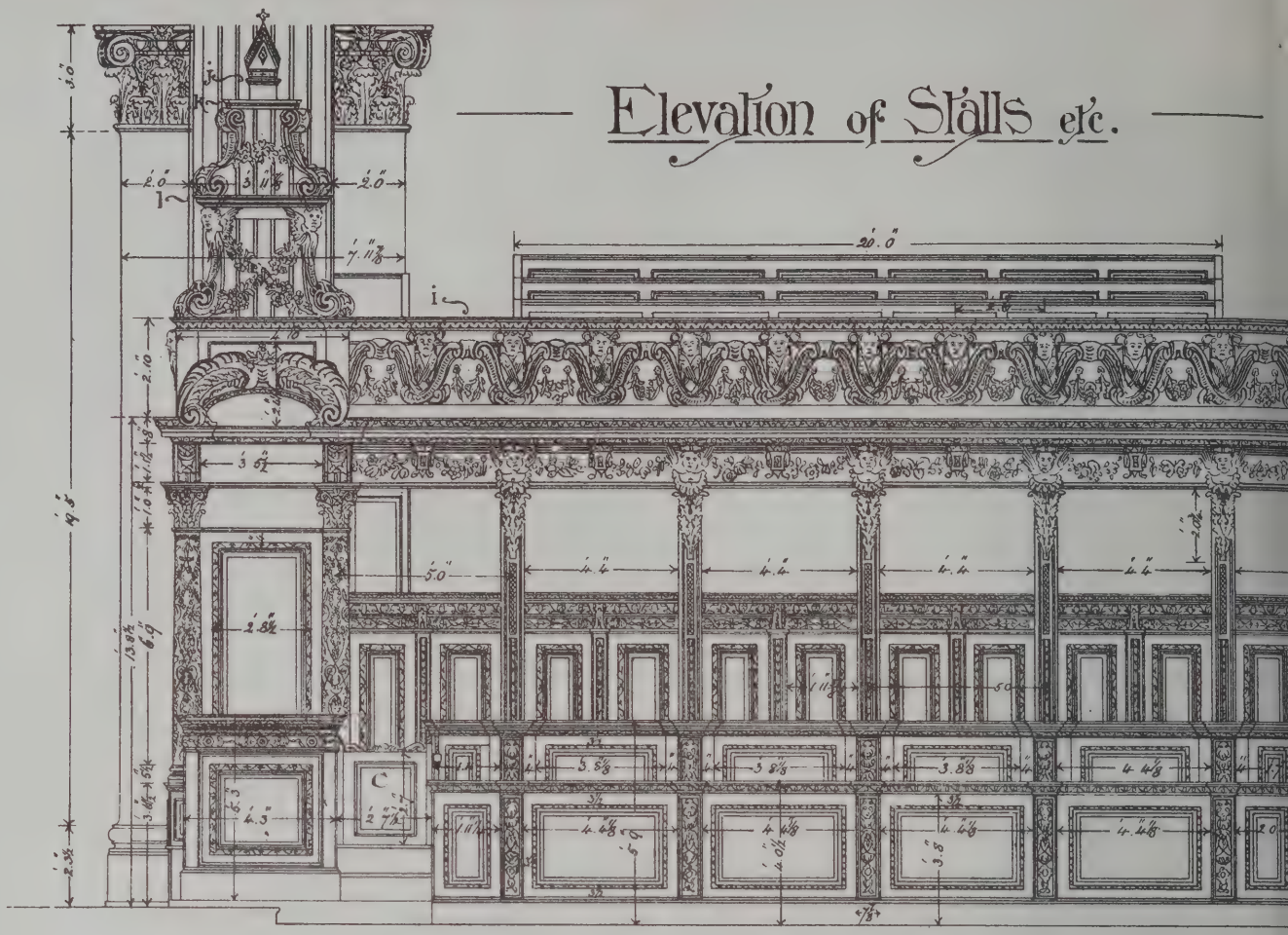
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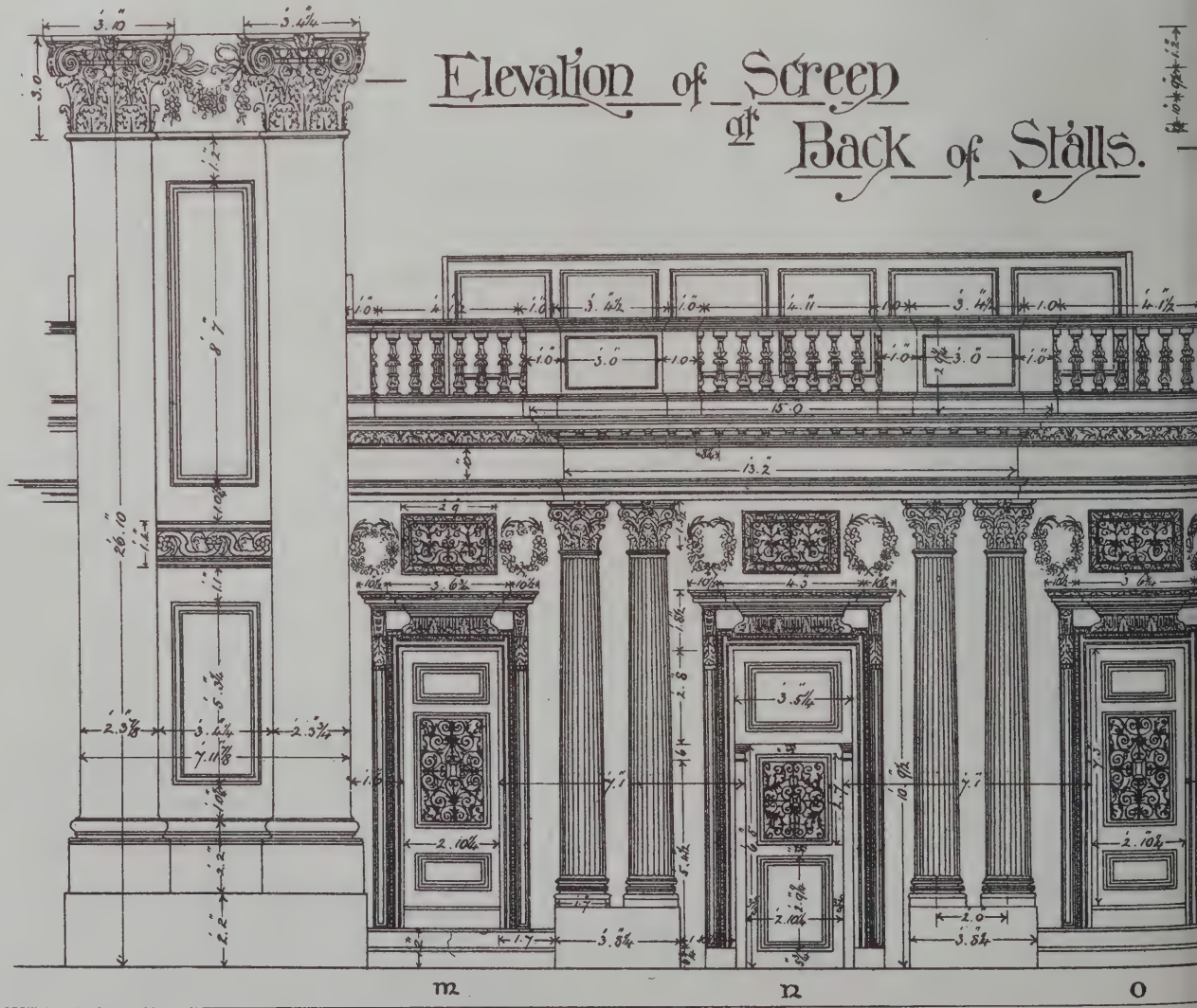
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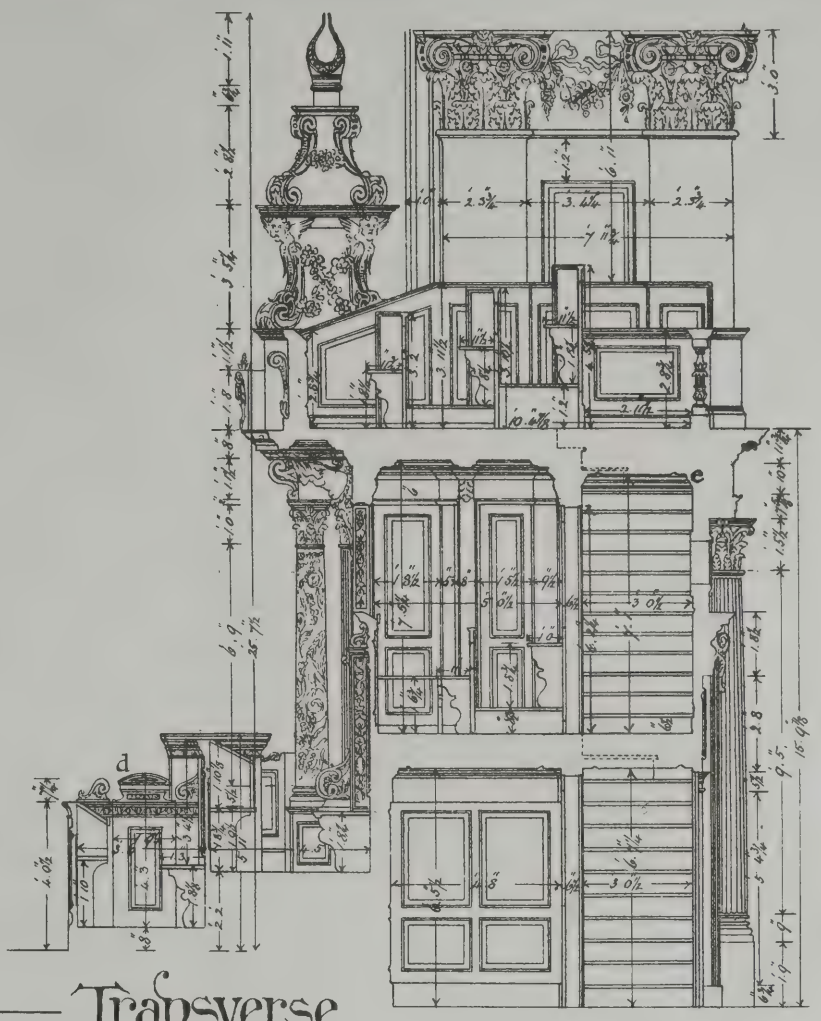
Elevation of Stalls etc.



Elevation of Screen at Back of Stalls.

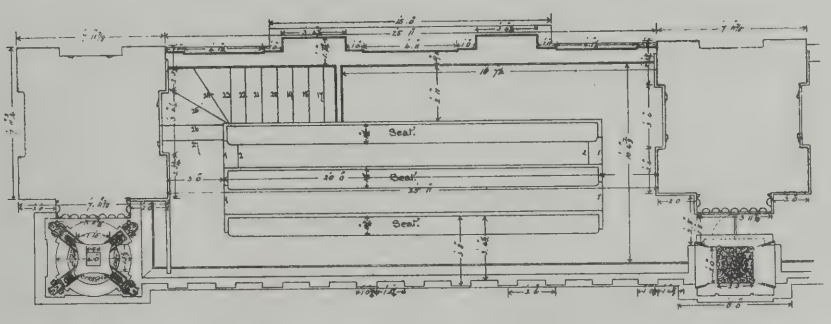




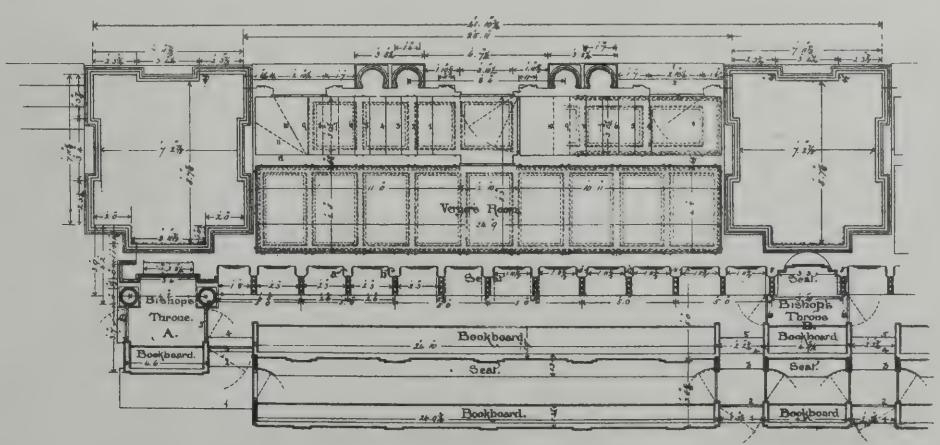


Transverse Section looking East.





Plan of Gallery.



Ground Plan.

St Paul's Cathedral.

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THE BUILDING NEWS
AND ENGINEERING JOURNAL.
VOL. LXI.—No. 1908.

FRIDAY, JULY 31, 1891.

LEGISLATION AFFECTING BUILDING.

SEVERAL Bills have been lately proposed and passed by the London County Council which will have an important bearing upon street improvements and building operations in the Metropolis. There was certainly much room for improvement; the administration of the old law did not always work smoothly; a considerable number of anomalies in matters of local management took place; the interpretations of the existing building laws by the Courts gave rise to many contradictory decisions which materially weakened the hands of the authorities. The clauses introduced in the London Council (General Powers) Bill of last session we referred to briefly last week. Of these the most important in their bearing upon buildings in London are Sections 28, 31, 33, and 36. To take one instance of the narrow restriction of the Building Act, its complete ignoring of all new or improved materials for building. The Council practically, under the old Act, had no power of making by-laws for sanitary objects, nor with regard to plastering, the materials for which could be almost anything. They were powerless also to insist upon the construction of impervious outer walls for basements. The amended draft by-laws under Section 16 of the Metropolis Management and Building Acts Amendment Act, 1878, give larger powers to the Council as to the foundations and construction of walls, and practically they give consent to the employment of materials which, under the old rules, were regarded with some suspicion, if not with disfavour. The materials used for damp-courses may, for instance, be any that are approved by the district surveyor. The concrete is prescribed in its ingredients and proportions. Many of the improvements in the by-laws have been suggested by the Surveyors' Institution, the Institute of British Architects, the District Surveyors' Association, and others. Again, under Section 31 of the General Powers Act, it is provided that for plastering, sound laths free from sap and freshly-burned lime and clean sharp sand must be used. At the same time the by-law does not exclude new and approved materials. Iron and incombustible laths or wire netting may be used instead of wood laths; and for cement, Portland, Keene's, parian, Martin's, selenitic, or other approved cement or plaster can be employed. Again, it is permitted to use fibrous material to the satisfaction of the district surveyor, instead of hair, and ground bricks, or furnace slag instead of sand. This last is one of the amendments to the former draft which we have already given. For ceilings or partitions, fibrous or other slab plastering can be used with the district surveyor's approval.

As to corner buildings with frontages in two streets, it has always been a difficult question to decide which frontage line ought to be complied with, but the decisions of the Court have generally held that a corner building can be in two streets, and, therefore, a side street is considered as much as a main street. This ruling was that in the case of "Barlow v. Kensington Vestry," and was also that of De Vere Gardens in the Court of Appeal. Section 33 will finally settle the question, as the Council are now empowered to control the main and side frontage of buildings in streets hereafter to be formed. An equally important section will prevent the erection of buildings of an excessive height, the Council having the power in their own hands to give their sanction or not to any erection of this class. The effect of this enactment will, of course, be to limit expenditure on a certain area, and thus to a certain extent to limit the architect's commission, and perhaps that is one reason why some of the profession have not given their support to the clause. If so, it is a very near-sighted and narrow policy.

But the legislation of the past year has done much to promote architectural activity and progress, besides amending building laws. Bills like the London Streets Improvement Bill, by widening important thoroughfares, will give opportunity for rebuilding on a scale that has seldom been afforded. For example, the proposed street from the Strand to Holborn, brought before the London County Council, will open some very valuable frontages for building. We do not altogether approve of the straightness of the line of the new street, which commences at the south end opposite Wellington-street, having its opening at the corner of Catherine-street and the Strand, and taking a straight line to High Holborn opposite Southampton-row. The route will cut obliquely through Drury-lane, Kemble-street, Great Queen-street, and absorb almost entirely Little Queen-street at its north end. Probably the line adopted will be the least costly—at any rate, important frontages will be made for new buildings, and not a few of the sites will suggest themselves for theatres. For the purpose of recoupment, adjoining property is often bought in addition to that absolutely required to make a new street; but in this case the committee have abandoned this idea, as they have found it unremunerative in other instances. For architectural reasons this is a pity, as many of the triangular corner-plots intersected by the new street would be valuable for public buildings or for letting under the control of the Council. The southern approach to the Tower Bridge is another opportunity that will soon be afforded for the remodelling of old premises. The improvements contemplated at the corner of Tottenham Court-road and at Wandsworth-road, Battersea Park, and York-road are all of importance if we look at the possibilities which these schemes suggest. Unhappily, however, experience in public so-called improvements has not been favourable. Commercial speculators and builders have filled up sites with blocks of offices and shops, over which no control has been exercised in their elevations, and the general appearance of a new street till age has toned it into harmony with its surroundings is one of disappointment or disgust. The mode of levying rates and the amount of compensation are points which the Council have considered in these schemes. One of the principles was that known as the "betterment" principle, by which the rates are levied in a higher degree upon property which will derive benefit from the improvement; but the provisions for this purpose were struck out of the Bill. Another and no less important principle which has been incorporated in the Bill is that, in a question of disputed compensation, the arbitrator shall not award any sum of money for any improvement, alteration, or building which has been made or erected with the object of increasing the compensation, so that owners of property will be prevented from trying to take advantage of their position by resorting to means of increasing their compensation or purchase money. We have heard of many flagrant instances of making money by these subterfuges, which public authorities, in the interests of the ratepayers, ought to check.

A Bill to consolidate the law relating to theatres, music-halls, and other like buildings has been framed and read a first time in the House of Commons which, if it does not meet with the opposition from lessees of theatres, will greatly strengthen the hands of the authorities in seeing that buildings of structural convenience and safety against panic and fire shall be erected in the future. The piecemeal and very disjointed provisions of the law as it now stands have enabled buildings of a very unsatisfactory character to be erected. The recent rules and by-laws that have been put into operation have only partially remedied the evils of insufficient and narrow exits and improperly-constructed corridors and staircases. We have on a former occasion discussed the provisions of the Public Health (London) Consolidation Bill. It is needless to say how great a boon this will be to both the sanitary authorities and the public, who are at present defied by those who revel in the uncertainties of the statutes, and take advantage of conflicting authorities.

Architects and all those who desire to stop the mania for disfigurements and modes of advertising in the streets will be glad to hear of two "private" Bills promoted this year, one dealing with overhead wires, and the other with sky-signs. Wires and hanging advertisements are rapidly increasing in London and our large towns; the least desirable encroachment is the sky-sign, which materially interferes with the contours or sky-lines of our public buildings to which they happen to be in proximity. The danger of sky-signs that have been badly fixed or neglected is one of the strong reasons for a measure to prohibit or control the erection of these disfigurements. The Bill has passed the Select Committee of the House of Commons, and we understand it has been generally approved. At no previous time probably have so many Bills affecting buildings been promoted, or, in the case of public Bills, watched; and the profesion would do wisely to take notice of them. The proposals of subway railway companies, as that of the Central London Railway, are likely to affect, whenever they become law, many rights and interests. As the freehold in the subsoil is vested in the owner of the land, it is necessary to exercise some care in the preparation of plans for railways, gas and electric-lighting works, as claims are constantly being made by the freeholder for compensation or purchase money. In the opinion of many, the insertion of clauses giving power to owners of land adjoining a line of proposed railway to claim payment for the ground under the surface ought to be opposed, as such clauses would establish a precedent prejudicial to the interests of the public. In the case of the Central London line, which has passed the third reading in both Houses, the clause which gave power to the railway company to take the subsoil without compensation was struck out, so that they are liable to payment of compensation to the freeholders. The question is one requiring consideration by both promoters of such works and owners of property.

NATIONAL COMPETITION PRIZE DESIGNS AND DRAWINGS.

THE annual competition of Schools of Science and Art held at South Kensington is, on the whole, a fairly representative display. The works sent up for examination number 48,636 from Schools of Art and branch schools, 40,335 from art classes, and 43,246 from science schools, and of these 2,015 works were selected for competition. The drawings in the galleries comprise only works for which medals and prizes of books have been awarded, and even some of those, from want of space, have not been hung. Six gold medals, 74 silver medals, 138 bronze medals, and 254 book prizes have been awarded, in addition to the honorary awards to students of the training class. Birmingham, Canterbury, Edinburgh, Glasgow, Manchester, and South Kensington

represent schools which receive gold medals, and Birmingham, Dublin, Leicester, Sheffield, and Manchester are large recipients of silver and bronze medals. But these awards do not invariably indicate the progress or success of various schools, or the development of art in this country. They only represent the few individual geniuses, by no means the steady progress made. We rather look to the bronze and book prizes as the most representative mark of the work done in the schools.

We now confine our attention to the architectural designs and drawings, and to some of the designs for metal work, hangings, mosaics, and textiles. No student of architectural design has been deemed worthy of receiving a gold medal. Charles R. McIntosh, Glasgow, is awarded a silver medal for a design for a public-hall, Greek Ionic in design. The order rests on a plain basement, and the general design and details are refined and well drawn; but the practical utility of such a building may be questioned. As an academic study for the Alex. Thomson Travelling Studentship, it has merit. The perspective is shaded in ink. A design for a science and art museum, with centre pavilion and ends, has much Greek feeling, and is neatly drawn; a clever section is shown. Another silver medal is given to James H. Tonge, York, for a design for a cathedral church of cruciform plan, with central tower and spire, or lantern. The design is rather too fanciful in some of its features; but without a plan it cannot be critically examined. Why is this important part of the design not hung? The sections are sketchily drawn, but not sufficient to indicate construction, as of the octagon lantern or spire. Imaginative and fanciful in some of the features, there is evidence of no mean architectural skill and taste in the composition and drawing. A silver medal is also given to Heber Rimmer, Chester, for a design of a country church, which exhibits some taste and feeling in the treatment. The plan has a nave, chancel, and aisles. There is a west tower of good proportion, with low pyramidal tile roof and angle buttresses. The nave is five bays long, and the style is Late Perpendicular, with exceedingly massive buttresses. The red tile roof contrasts with the stone walling, and the drawing is boldly tinted. Priestly B. Shires, of Plymouth, obtains the same prize for a design for technical college. The plan, a rectangle, is fairly well disposed, with lecture theatres for applied mechanics and chemistry on each side of entrance, having workshops and yard entrance in the rear. The principal staircase is meagre, and the corridors are lighted by a very small area. The design is a solidly-treated Italian building with two stories and orders, pavilions at corners, having heavy domical roofs, with central cupola. The drawing is bold, but the proportions and outline not happy. One of the cleverest and most artistic designs is by Albert C. Breden, of the People's Palace Science Class, for a town hall, shown by a nice sketch in sepia. The features are of Renaissance character, and the hall and wings well grouped. The offices are on the ground floor, and hall above; the entrance hall is not well lighted. It takes a silver medal. George S. Hill, Glasgow, is awarded a silver medal for an Early Classic hall, a large, domical building, with four porticoes, and of Greek design. The dome has a crushing and overpowering effect. The drawing is well executed, and a good perspective accompanies the design. Bronze medals have been awarded to George S. Hill, Glasgow, for a public school design, a Classic-treated building, with tower; to E. Clarke, Birmingham, for a design for cathedral, in which the student's imagination has run wild; and to J. Hall, York, for a country house in Late Gothic; to Ernest R. Davis, Leicester, for a fairly-drawn design for a small church, of stone, but of poor detail, in Late Perpendicular, and with a very small chancel; to W. Eaton, of the same town, for a clever design for public baths. Charles N. Holloway, Nottingham, receives also this prize for a design for municipal buildings, Renaissance in design, with high roof of two orders of pilasters and corner towers. W. C. Gregory, of the same town, receives a medal for a design for law courts, a building of three stories, Italian, with angle towers, and rather poor in proportion and fenestral treatment. A. Spain, of Sydney, receives a bronze medal for a Classic design of poor proportions and plan. Bronze medals are also given to J. H. James, Cardiff, for a cathedral, cruciform and Geometrical in style; to George Gunn, Glasgow, for a clever study of a Volunteer drill-hall, Classic, and nice in the design and grouping of the tower; to H. Mitchell, Glasgow, for a design for a staircase to town mansion, well drawn, but ill-studied and pretentious; and to Howard Riddett, Leicester, for a village club, a nicely-tinted sketch, but with tracery and details of bad design and drawing. Book prizes are given to G. Lawrance, Bristol, for a design for a small church, brick, in Early English style, with octagonal centre tower, neatly drawn. With the exception of the design for cathedral, there is evident a more moderate class of subjects given for competition. Ambitious designing is better restrained, and provincial schools like those of Birmingham would do wisely to give buildings of more every-day requirements.

Referring to the designs in Stage 23c, we must mention the few exhibited drawings of wrought ironwork. The work is of less merit than we have seen before, and the examiners seem to have thought so too. A. Clarkson, Leicester, takes a bronze medal for panels of simple design, though rather poor; and the same prize is given for wrought-iron gates with centre panels, friezes, and rails of sheet iron. Amy Hobson, Sheffield, wins the silver medal for a design for coronet and bells for the Holy Scroll of the Law. There is much elegance in the outline, which is Persian in style. The daggers and sheaths by W. P. Belk, also of Sheffield, are delicate and graceful in design, and all artistically drawn. These also win a silver medal. Book prizes are won also by a "filling" of grille and panel—but the nature of design is not clear; and also for a wrought-iron bracket, wanting in adaptation and elegance.

The designs for mosaics, wall-papers, and decorations are good, and creditable to the authors. The Canterbury School, in the person of Gertrude Roots, has the fortune to win a gold medal for a design for mosaic of geometrical interlacing character. The colours, in blue and brown, are bright, harmonious, and delicate. Animal forms are introduced in the fillings made by the rather elaborate arrangements of interlaced octagons, circles, and star-like forms. Another lady of the same school, Mary K. Curtis, takes a silver medal for a mosaic pavement of a star pattern, subdued in colour, but with small repeating tesseræ, which gives the design a crowded effect. Amongst designs for tiles is one by Geo. Austin (Manchester), an interlaced arrangement with animals—ingenious, but rather crowded—awarded a silver medal; Evelyn D. Foster (Hertford) has a mosaic floor decoration—a clever, bright arrangement of intersecting forms in blue and delicate green. The urn-like intersections somewhat spoil the effect. A square repeat is shown. This design is also awarded a silver medal.

Other tile designs comprise a silver medal design by Lindsay P. Butterfield for printed tiles of boldly-arranged stem lines through repeats well drawn in two styles—one a peony, very delicate; also one, by Gertrude Roots, for a clever, continuous arrangeme of pattern, for which a book prize is give Fanny Hodson (Hertford) takes a bron medal for tiles—a geometrical arrangemer In wall-papers there are a very fe tasteful designs. A crude, natural sty appears to be common, and the examine say they are the worst that have been broug before them. Elsie Pardoe, Birminghar has a silver medal for an arrangement birds and foliage on a grey ground—a fair good scheme of pattern and colour, ar clever in drawing; a bronze medal is give to Ella B. Ginn, Hertford, for a design which animals are introduced rather crudel A silver medal goes to T. Kerr for an em bossed leather pattern broadly treated. Ver few designs of a decorative kind are ex hibited. Fred Mason, Birmingham, receiv a bronze medal for a piano-front in whic figures are introduced in the panels in re chalk; these figures are fairly drawn. silver medal for the same object goes to G. H Catt, Farnham, for a design in which mer maids and shells are fancifully introduced o a dull-green background. A spandrel wit figure on gold ground in glass mosaic, b Henry C. Fripp, receives a bronze medal the same student receiving a gold medal fo a design for a domestic stained-glass windov subject "The Daniads," original in desig and graceful in arrangement and drawing We must also mention in this class of desig a modelled frieze in low relief in plaste by Marion Thornthwaite, of Manchester, an another bronze-medal sketch design fo stained-glass panels, a clever study, b G. W. M'Kean, Leek. The same prize i awarded to Sydney Meteyard, Birmingham for a stained-glass window, subject "Deborah," the figure shown in a full size cartoon, and another by T. Stokes West Bromwich.

Amongst the designs for pottery we ma name Gertrude Root's design for plate, wit cupids arranged in border, the centre rathe weak, which takes a silver medal; Clar Thompson's design for plate, cup, and sauce ewer, &c., aster pattern conventionalised, i blue and white (a bronze medal); and Fred W. Hatton's neat design for a printed borde to plate, in which the iris flower is pleasingl adapted and simple in its repetition for thi kind of treatment. Annie Barnett, Man chester, takes a silver medal for a design fo a plate, Persian in style, and agreeable i the colour. The designs for textiles, hang ings, carpets, &c., are numerous. A silve medal goes to A. Cartwright, Macclesfield for a silk hanging, showing a rich arrange ment of colour, and a clever treatment o lilies and tigers, out of the common-place and bold in design. Lindsay Butterfield als gains this medal for designs for cretonnes, i which an ingenious arrangement of leaf an flower entwined in diagonal lines is shown W. Rawlinson's (Burnley) design for a cotton printed hanging on deep blue ground is als clever in the arrangement of flowers for th purpose. Other designs are the following —Bronze medals to J. Atherton, Bradford for a brocaded hanging of heraldic devices gold pattern on yellow ground; to B Fletcher, Leicester, for a conventionalise design; Thomas Holmes, Leeds, for a bold silk hanging; Mary Mohun, Canterbury, fo a silk damask, a clever arrangement of repea in brown and green; Robt. Sloane, Glasgow for a carpet of Oriental design. Book prizes have been awarded to Thomas Barret for a clever adaptation of foliage and flower for a printed cretonne; to W. Speirs, Glas gow, for a boldly arranged scroll pattern i delicate shades of red and green; to Joseph Slade, Manchester, for a clever natural treat ment of foliage and flowers rather crowded and to Albert G. Godwin, Macclesfield, for a bold adaptation of natural forms on a green ground. Silver medals are awarded t Archibald Walker, Glasgow, for a nice arrangement of natural forms and colour or

a carpet, but rather weak in effect; and to G. Beardsley, Nottingham, for a clever conventionalised design for carpet, but the border is scarcely bold enough for the field. The designs for embroideries and laces are few. Alice Jacobs has been awarded a silver medal for a very handsome design for a curtain to be executed in cut linen and embroidery with interlaced Irish ornament, but the latter is rather out of keeping with the embroidery; also for a portière to be worked on linen with coloured flax thread. The ground is well filled by the ornament, which is suitable for the material. E. Anderson, of Cork, shows some taste and invention for designs for altar frontal hand laces, suitable to the material, which receive a silver medal, which is also given to Annie Steen, of Birmingham, for three designs for edgings.

For figure compositions we must notice the design of Gertrude Lake, Manchester, for an oil interior of a carving class-room with students at work. The figures are well grouped and life-like, the execution unaffected and full of life, and the colour luminous. Gertrude Bradley, of Birmingham, takes a silver medal for a figure composition of children at play, full of spirit and animation, lightly tinted with a clever border of the fox and geese. Other designs of a special kind we must leave for a future notice.

The architectural drawings from measurements are of interest, and we may conclude this notice by referring to them. A silver medal is awarded to P. O'Sullivan, of Cork, for measured drawings of the pulpit in St. Mary's Church, Youghal. The sounding board and details are in the style of the 17th-century, heavy and impure Classic, the plan hexagonal. Heber Rimmer, Chester, wins a silver medal for some clever drawings of Compton Wynyate, Warwickshire, dated 1527. These are well drawn and figured, and comprise elevations of west and south fronts, and large details of gable and hall-porch and bay. A silver medal is also given to Arthur H. Hind, A.R.I.B.A., for sketches in pencil and ink illustrative of a "Cycle Ride, Leicester to King's Lynn," including sketches of Barnack Church, old houses, Croyland Abbey, Abbot's Gateway, Peterborough, Terrington Church, &c. Bronze medals are awarded to the following:—W. Brand, Ipswich, for drawing of font in Bramford Church, Suffolk, of Late character, and a Perpendicular screen in Drinkstone Church, in the same county; Matthew Hack, Leicester, for measured drawings of Kirby Hall, the details rather poorly drawn; John H. James, Cardiff, for drawings of Llandaff Cathedral; John R. Wright, York, for drawings of Sherburn Church, an example of Norman and Perpendicular work; Fred Gregory, for measured drawings and details of Picture Gallery, Hardwicke Hall, Derbyshire. Book prizes are awarded to Fred Sawyer, Brighton, for a neat drawing of chancel screen of St. Nicholas' Church, in that town; to Dews, for drawing of screen in council-chamber, Wakefield Town-hall; to Fred Shaw, Blackburn, for a drawing of an old oak cabinet at Samlesbury Hall. A drawing, a portion of elevation of Imperial Institute, by George T. Scott, receives a bronze medal.

Several very creditable examples of modelling in plaster are exhibited. A gold medal is given to Peter McCrossan, a South Kensington student, for a modelled design for a panel, a gracefully arranged relief, showing nice gradation and delicate touch; and silver medals to John Hughes, Dublin, for a panel—refined, and clever in arrangement; to J. Patchin, Polytechnic, West London, for a design for panel, the centre figure of which is weak, but with well-arranged ornament; to Lilian Morris, Hanley, for a vase, with terpsichorean figures tastefully designed; to Florence G. Smith, of the same school, for vase and plateau in low relief, refined, with delicately-modelled ornament, but the vase is not of nice profile; to Arthur Flynn, for a panel in Italian Renaissance, showing refinement; the centre vase is inelegant, and does not unite with the side ornamentation. A mantel frieze by W. Turnbull, shows a pleasing arrangement of figures and ornament in relief; but the end pilasters are small and weak. Other works, as those numbered 488 and 77, are clever examples of modelling, in which class we may place Nos. 500, 108, and 109, three nicely-modelled panels, which receive bronze medals. A cleverly-studied model of drapery, by Peter McCrossan, is worth notice, though only a book prize is awarded to it.

HOT-WATER ENGINEERING.—VIII.

SUPPLY OF HOT WATER FOR BATHS AND DOMESTIC PURPOSES.

THE CYLINDER SYSTEM (*continued*).

IN addition to the advantages explained in the last paper, this system permits of the taps being better supplied with hot water than with the tank system first treated, as by "returning" the rising main service we can bring the hot water to almost any point, without the drawback that exists with returned draw-off services when connected to the flow and return, before described.

With all works of any pretension the rising main service from the top of the cylinder has

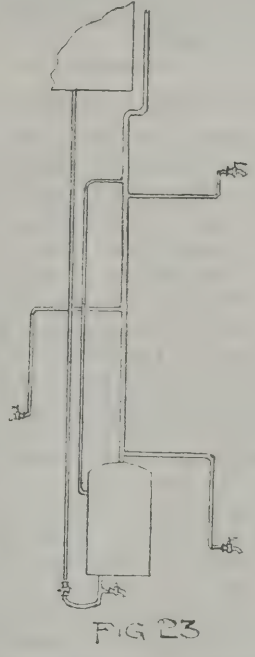


FIG 23

necessarily to be returned, as to extend this service by a single pipe for a good distance would necessitate a deal of cool water being drawn off before hot could be obtained. This service, if long, and consisting of a single pipe, would have the disadvantages of a long, single draw-off service in the tank system, although not in such a marked degree, for when the water in the cylinder reaches boiling-point the rising main becomes charged with hot water, even though it be a single pipe, the steam and other results effecting this. When, however, the demand for hot water or the power of the boiler does not admit of the water reaching boiling temperature, then a long single service is decidedly objectionable, as the water within it is often cold. When hot water is required, the cold must be withdrawn first—this is usually an annoyance to commence with—then when the tap is closed the pipe is left full of hot water, which soon becomes cold, so that there is a waste of heat. The waste of heat is improper at all times, and the waste of the cold water which precedes the hot is of some moment where the water is pumped, or perhaps limited in quantity.

When the rising main is returned, the portion from the top of the cylinder to above the level of the house-cistern is the same as when it is a single pipe. The return is started from some point below the cold-water cistern, but not necessarily high up in the house if there are no draw-off taps there. Usually it starts just by th highest draw-off service, as Fig. 23; but

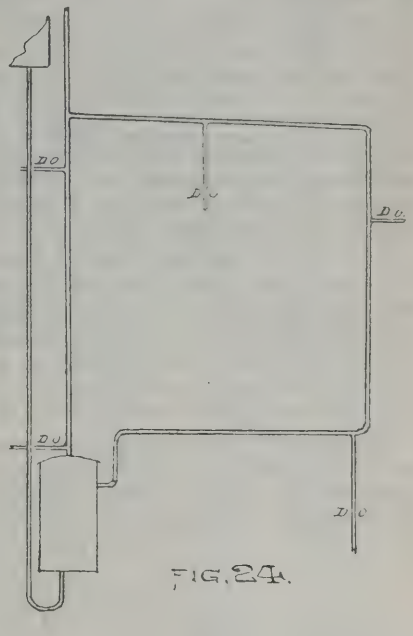


FIG. 24.

if the highest draw-off is at a bath, then the return is not needed there, as some cold water is always needed when filling a bath, and it might just as well come from the hot water tap as the other.

Now as the only object of the returned service is to prevent the water being stagnant, and to bring a constant supply of the hottest water right up to the taps, or as near to them as possible, there is no occasion for a rapid circulation to occur through this pipe, and quite a sluggish movement will be found sufficient. This permits us to effect a saving by using a smaller pipe for the return portion of the service. No harm ensues by so doing, as this pipe does not fur up.

This last illustration, and the explanation devoted to it, is of a returned rising main with both pipes following the same route—that is, accompanying one another. This method, however, is not always followed if the positions for the taps are scattered, in which case the return can be utilised by carrying it in a different direction to the flow, and taking draw-off services from it

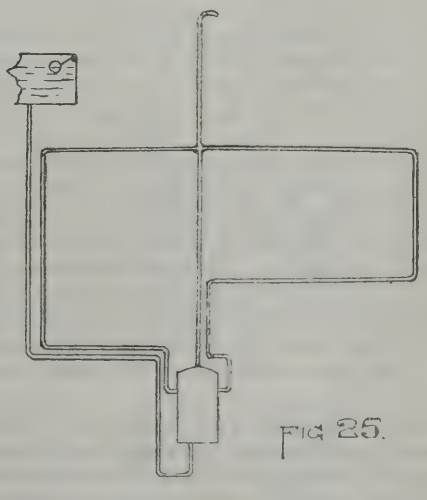


FIG 25.

as Fig. 24. In such an instance the return pipe should not be of smaller-size tube, as just recommended, except past the last draw-off service, if this happened to be some distance from the cylinder. By this arrangement, every tap can usually be near the service pipe which has the hottest water in it; but the tap nearest the cylinder in the return will not be so well supplied as those which precede it. Here again is a fault almost wholly caused by loss of heat by radiation from the pipes.

If this service from beginning to end was well felted there would not be a very marked difference in the supply of hot water to the first tap or the last. In this illustration the draw-off services are marked D O.

Sometimes, when the range or boiler is situated centrally to the work, the rising main can have two returns, as Fig. 25. This is supposing the engineer finds circumstances make it desirable. This can readily be judged, the gain effected by the two returns being a quicker supply to the distant taps than might be obtained otherwise. The writer has in mind a hotel in which the cylinder has four flows and seven returns, the apparatus being very extensive, and it is unnecessary to add that the cylinder is very large, and the boiler (an independent one) correspondingly so. When the return of the rising main, properly called the secondary return, is in duplicate, it is almost a certain sign that the apparatus is on a sufficient scale to need an independent boiler. This is not always the case, but very usually so, as can be easily understood. In this last illustration only one steam or expansion pipe is shown in the centre. It would probably be better to put two, one at each right and left-hand corner extremity. The approximate capabilities of range boilers will be referred to presently.

The point at which this secondary return should be connected in the cylinder is much disputed, and that which is shown in the last illustrations will doubtless be new to many of the readers who understand these works; but

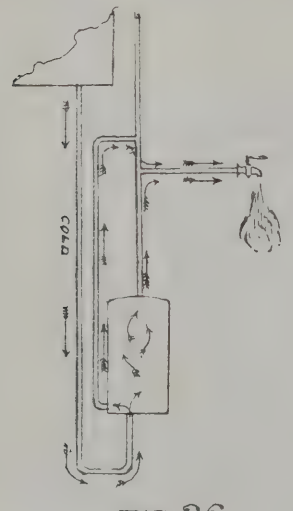


FIG. 26

notwithstanding this, it will be shown that the point indicated—viz., about ⅛th to ¼th the way down the cylinder from the top, is the correct one without the least doubt, and will always give the best, quickest, and most certain results. The usual arrangement is to either connect this service into the side of the cylinder at a very low point, or in the bottom, or to take it into the primary return pipe between the cylinder and boiler; sometimes it has been taken into the boiler itself. All these methods have sometimes been considered successful; but the success has been due, undoubtedly, to the apparatus being such that a fault of a moderate character might be overlooked by the boiler being more than sufficiently powerful, or the demand for hot water being limited. If the apparatus was one which would only meet the demand under favourable circumstances, a different opinion would have been formed.

One of the most important things to be noticed in a glass apparatus is the action that takes place when a tap is opened. This may sound unimportant to some, but it is far from being the case, for, as before mentioned, an apparatus is not unfrequently met with which heats up well, but from which the water is drawn at a very unsatisfactory temperature; in fact, it is quite often that a failure results, although the boiler is quite capable, and cannot be found fault with. This is the case when the secondary return (the return of the rising main) is connected in the cylinder or elsewhere at a wrong point. The action that can be noticed in a glass apparatus when a tap is opened, is that the water instantly rushes from all points to the tap; it is in no way governed by the direction in which the water may be circulating, nor by the rapidity with which the water is moving, nor by any other such phenomena. The instant the tap is opened the water, starting from the point where the cold supply enters the cylinder, takes every available route to reach the tap, not only up the secondary flow (as might be expected), but just as rapidly up the return. A moment's reflection will show that this might reasonably be expected, as no reason exists for the water to remain still in one pipe while its flows rapidly through another by its side, both pipes having free and open communication with one another at both ends.

Now let us suppose the secondary return was connected into the cylinder at a low point in its side, as is the most usual practice, as Fig. 26. Immediately a tap is opened the water proceeds with all its speed in the directions indicated by the arrows, and it will be seen that an almost direct communication is opened up from the cold supply to the tap, by way of the secondary return. There would be hot water passing up the secondary flow from the top of the cylinder to the tap; but the nearly equal quantity that travelled up the secondary return to the tap would be cold, so that if the water in the cylinder was, say, 200° at the top, the water that would issue from the tap would probably not exceed 120°. This is not a satisfactory result by any means; but it is a result as common as can be. It is unnecessary to give illustrations of what would occur were the secondary return connected in at the various other points referred to, such as into the primary return, &c. A little observation and reference to the last illustration will quickly show that there is only one point at which the return can be connected with certainty of good results at all times, whether the quantity of hot water at the moment be large or small, and that is near the top of the cylinder, as shown at Figs. 25, 24, and 23.

"BUILDING NEWS" DESIGNING CLUB.

A TENNIS PAVILION AND CLUB SUMMER-HOUSE.

THE holiday season has come round once more, and the work of our club for session 1890-91 has come to an end. In point of numbers the contributions of the members have compared favourably with those of previous years, and there can be no doubt as to the marked progress made in the productions of several who have been working steadily at the problems which we have set for their benefit from month to month. The standard of excellence both in point of design and draughtsmanship attained by the leading contributors to the Club this year is, notwithstanding, hardly equal to the example set in days gone by. This is to some extent due to the absence, probably, of any specially gifted men among those who have more recently joined, though for careful endeavour and general interest in their task we have much to praise our fellow-workers for. The last subject partook more of a lighter character than those given for the winter's work, and when minds are naturally turning to outdoor pleasures a tennis pavilion may with good reason be considered a seasonable problem for the energies of the architectural student. The subject certainly is one open to much improvement upon ordinary buildings of the kind. The following were the instructions issued to competitors:—"H.—A tennis pavilion and club summer-house in brick and timber, with thatched roof, suitable for a suburban tennis club. The building is to comprise a shelter 25ft. long by 10ft. deep, fitted with three rows of seats, the rows to be raised one behind the other in the usual way. A covered staircase at one end, to lead to an open-fronted upper floor, providing accommodation of similar dimensions as below. A gentlemen's dressing-room, 10ft. by 8ft., fitted with lockers on one side, a w.c., lavatory, and urinal. Upstairs, over this, a retiring-room for ladies, lavatories, and w.c. to be contrived. Provision to be made for a clock. The heights are left to competitors, and the drawings are to include two plans, two elevations, a section, and perspective view with detail of some part of the façade drawn to ½in. scale. General drawings to be drawn to ⅛in. scale."

The first place is awarded to "Eighteen 91," the second place to "Spectre," and the third place to "Albyn." We publish the first two among our illustrations to-day. "Eighteen 91" still continues very rough in his style of drawing, which in one way shows a certain amount of cleverness and "go" so necessary in original work; but it is of equal importance for success that an architect should be careful to show his intentions clearly and in a workmanlike manner, not necessary in a commonplace way, but with thought and accuracy as one who exactly knows what he is about, and how he means the details to be executed. The rough and tumble of random studies is not the best method for a student to adopt, and many a young architect has realised by bitter experience the truth of these trite remarks when dealing with contracts and contractors working on drawings produced after this method. While, therefore, we acknowledge our aim as furthering spirited suitability of design in the problems we set for our members, we unhesitatingly condemn for the best of reasons slovenly work and absence of care for practical detail so essential to good building. At the present moment we know of one of the most original and remarkable buildings which have been erected within recent years, opened only within the past few days with great ceremony, wherein the raised mouldings on some of the principal doors have had to be cut back to permit of the proper opening of the doors, and in other places to find room for the space required for their locks. The result of such patching is, of course, most unfortunate, and blameable entirely to the designer, who, although now an eminent architect, has thus done a careless and foolish thing which will always be in evidence against him.

We do not wish to be contentious, nor to throw cold water upon the designs presented for this subject, but we cannot say that we think any of them entirely suitable for erection. The conical roof over the staircase of the design placed first seems to be an excrescence having a stuck-on look, and the curved tips in the thatch along the main building would have been best omitted. The clock turret is prettily detailed, and the building would fairly answer its purpose, though the plastering between the timberings of the balcony front would be very liable to be damaged and knocked out. "Spectre" is still untidy in his drawing, and rough, without a capability of dash. The detail of his work is not good. See, for instance, the timbers of the upper stage are kept back flush in a line with the wall below, instead of sailing over, as the material suggests, and as the bold cornice renders necessary if good effect is studied, and if good precedent be followed. "Albyn" spoils his ground-floor stage by the struts, which he carries off at different angles to give strength to the gallery front. They are really not necessary, and would materially interfere with the view of those sitting at the rear of the shelter gallery. The staircase up to the first floor is more practical than in the second design, and, being straight, is preferable to the first design, which is circular. The sloping buttresses at the ends add much to the quaint effect of the structure, but for the breadth sake they should have been set at right angles with the main fronts. The drawing is poorly done, but "Albyn" has an eye to style and character which deserves cultivation. The clock is too small; the players would scarcely see its face, much less tell the time by it. "Smilash" exceeds the conditions somewhat by furnishing more than we asked for. He gives a club room and buffet bar behind the shelter for spectators. This is all well enough, and the club-room would be a pretty apartment with the two bays, one on either side of the fireplace, but we cannot compare the design quite fairly with the others. The difficulty of treating so shallow a building as we specified with anything like dignity of effect is obviated by more than doubling its depth in this plan. There is too much waste of space also in the building in its heights, though the detail is rather clever, and so is the plan. The sloppy drawings which illustrate "Smilash's" work are not effective, and deserve to be improved. "G" in a horseshoe does not slacken in his determination to work properly, and we fully credit him with this great merit. He also has a semicircular staircase turret at the end, which in its way is more satisfactory than the conical-roofed one by "Eighteen 91." The ridge runs into the hip of the main building, and the eaves are brought down just below those of the principal roof. They would have been better level. The general effect of the building is rather toy-like; the hips and clock gable boxed up over the posts below probably add to this appearance. In plan the dressing and retiring room doors come too close



to the public galleries entrances, and then, to make matters worse, the water-closets face these doors, so that on occasions those using these conveniences would be needlessly seen going in or out. We do wish this member would learn to draw more freely and with less niggle. His hinges on the door look like the cast-iron "shams" so greatly in vogue during the worst days of the Gothic revival. "Three Lions in a Shield" comes next, giving us a design which breaks forward towards the centre of the front with the staircase, under the half-space of which he contrives a reporter's gallery or scoring box. The design is spoiled by the fact, for one thing, that everyone going upstairs must come in or go out in front of those below, passing and repassing to the inconvenience of everybody. The clock face is square, set diagonally. The retiring rooms are ample and convenient, and the design, as a whole, commands itself to approval, save where we have objected to it. "Thinlin" draws so poorly in perspective that he quite fails to do his designs justice, not that any one could make the roof of this design look otherwise than ugly. The arcaded front below, and the plain turned uprights to the balcony above, are very nicely managed. The projecting balcony front is pretty too; but the tiles would soon come off in so exposed a position with excited spectators leaning over, and not infrequently larking about. There are too many winders in the staircase. "Multum in Parvo" utterly ruins his elevation by the shockingly ugly curved roof over the staircase. It would be difficult to construct, and having the hip of the principal roof running into it, is bad in every way. In other respects the design has several good points about it, and the details show study and care. "Black Prince" is very neat, and in not a few particulars his design resembles "G" in a horseshoe, already remarked upon. He adds a refreshment and cooking room behind in conjunction with the gentlemen's dressing-room. The ladies' closets over the buffet and kitchener would give trouble. The details of this design are carefully drawn, but are weak in design. "Philomath" has not improved his position this time. The wide gabled centre is not the best means of roofing a building running the other way, and the intersecting roofs on either hand further cut up the construction and spoil all grace of effect and simplicity of line, so essential to true picturesqueness. The plans are not particularly good either. "Etudiant" draws carelessly, and gives a tilted look to his building, which has a square staircase tower above; and "The Bard" has a notion of grouping well, but the projections which he obtains with this end would impede the view of the game to those in the galleries erected for spectators. This is a fatal objection in a grand stand of this sort. "Sphinx" goes in for three floors, and needlessly restricts the first-floor gallery. His perspective bears no reference in its general proportions to the scale elevation, and looks at least twice as wide as it should do. "Mephy" builds out rooms in front which would obstruct all view on one side. "Sassenach" sends a simple design, but his staircase for the ladies to reach the gallery by would have to pitch up like a ladder. "Better Late Than Never" makes a feature of an octagonal tower for the staircase projecting in the front. The design has good points about it in other respects. "Merlin," at first sight, seems to have hit upon a conceit borrowed from the Chinese, and this gives quaintness; but on further study it is found that the detail is very poor, and the two turrets, pretty in themselves, one at either end, do not grow out of the requirements, and would look fussy, and forced in effect. "Pickwick" misunderstood our conditions, and has drawn a summer-house, octagonal on plan, besides a pavilion and club. The other remaining designs all have some merit, and we group them in the following order of precedence:—"La Cigale," "A Pair of Scales," "A Pilgrim's Progress," "Idler," "C. H. Q.," "Monarch," and "Mikado.'

LONDON AND SOUTH WESTERN BANK: STROUD GREEN BRANCH.

THESE premises, which are now nearing completion, are being carried out for the Directors of the London and South-Western Bank (Limited), from the designs of their architects, Messrs. Truefitt and Truefitt, of 5, Bloomsbury-square. The ground-floor front is in red Mansfield stone, the entrance doors, window frames, and sashes being of polished teak. The banking chamber on ground-floor is also to be furnished with teak fittings. The upper floors are arranged for the manager's residence, and in the basement are placed the strong rooms, the doors and grilles for which have been supplied by

the Milner Company; the heating apparatus is by Messrs. Perkins, the contractors for the whole being Messrs. G. E. Bryan and Son, of South Norwood.

PRICES.—XII.*

[It will have to be borne in mind that the prices given do not include any provision for an increase in the cost of labour, should the men now on strike obtain the 10d. per hour; and contracts taken pending the strike should be entered into with caution, and ought to have a clause allowing an increase if the 10d. is paid, though it scarcely seems probable that it will be.]

THE following particulars of charges and regulations made by the City authorities came to hand too late for insertion with those already given.

Charges made for making good roads vary with the streets the work is done in. The following are a fair selection of streets and prices for new and repairing work.

Gresham-street.

		£	s.	d.
Concrete	per yard super.	0	2	0
Asphalte, 2½ thick	ditto	0	11	0
Maintaining for 7 years	ditto	0	1	3

Repairs ordered by the commission should it undertake the maintenance of the pavement.

Concrete	per yard super.	0	4	0
Asphalte	ditto	0	12	0

Repairs over openings for gas, water, and other purposes.

Concrete	per yard super.	0	4	6
Asphalte	ditto	0	12	0

(Weight of asphalte at the endof 7 years per yard super, 130lb.; at the end of 15 years, 90lb.)

Old Bailey.

Concrete	per yard super.	0	2	0
Asphalte	ditto	0	11	0
Maintenance	ditto	0	0	10
Repairs:—				
Concrete	ditto	0	4	0
Asphalte	ditto	0	14	0

Aldgate.

Concrete	ditto	0	2	3
Asphalte	ditto	0	10	9
Maintenance	ditto	0	1	6
Repairs:—				
Concrete	ditto	0	4	6
Asphalte	ditto	0	12	0

Fenchurch-street.

Concrete	ditto	0	2	3
Asphalte	ditto	0	10	9
Maintenance	ditto	0	1	6
Repairs:—				
Concrete	ditto	0	4	6
Asphalte	ditto	0	12	0

Footway Pavements.

Asphalte	ditto	0	5	6
Maintenance	ditto	0	0	6
Repairs:—				
Concrete	ditto	0	1	9
Asphalte	ditto	0	6	0

Bishopsgate-street Without.

Asphalte	per yard super.	0	5	6
Maintenance	ditto	0	0	4
Repairs:—				
Concrete	ditto	0	1	6
Asphalte	ditto	0	6	0

Leadenhall-street.

Asphalte	ditto	0	5	6
Maintenance	ditto	0	0	6
Repairs:—				
Concrete	ditto	0	1	6
Asphalte	ditto	0	6	0

FEES FOR LICENSES.—HOARDINGS.

	£	s.	d.
If to remain not more than two weeks, per foot lineal of frontage	0	0	6
If over two weeks, and not more than four	0	1	6
If over four weeks, and not more than eight	0	4	6
If over eight weeks, and not more than twelve.	0	9	0
For every month, or part of a month, beyond the twelve weeks, per foot lineal	0	5	0

SCAFFOLDS.

	£	s.	d.
If to remain not more two weeks, per foot lineal of frontage	0	0	4
If more than two weeks, and not than four	0	1	0
If more than four weeks, and not more than eight	0	3	0
If more than eight weeks, and not more than twelve	0	6	0
If more than twelve weeks, and not more than sixteen	0	10	0
For every month or part of month beyond the sixteen weeks	0	5	0

RAKING SHORES.

		£	s.	d.
If to remain not more than two weeks	each	0	5	0
If more than two weeks, and not more than four weeks	ditto	0	15	0
If more than four weeks, and not more than eight	ditto	2	0	0
If more than eight weeks, and not more than twelve	ditto	4	0	0
For every month or part of a month beyond twelve weeks	ditto	2	0	0

No fee for either hoard or scaffold to be more than £10.

When a license is renewed, the fee is to be that which would have been charged had the license been taken out for the full time at first less the sum of money already paid for the first license.

Each application for hoard or scaffold must give the following information:—

1. Name of street or place and No. of house.
2. Nature of work to be executed.
3. Area of ground level of premises to be built, or old premises largely altered.
4. Number of stories, including ground floor, if new premises are to be built or old premises altered.
5. Length of hoarding or scaffolding needed.
6. Time for which license is requested.
7. Name and address of building owner.
8. Ditto ditto architect.
9. Ditto ditto builder.
10. Ditto ditto applicant.
11. Date of application.
12. Signature of applicant.

REGULATIONS.

The Inspector of Pavements is to report the time he thinks needful for the hoard or scaffold to be licensed. The license is then to be made out and the conditions entered in the book by the Clerk.

If there is disagreement between the applicant and the Inspector as to the time needed, the Engineer to the Commissioners is to decide.

No hoard or scaffold is to project beyond the footway pavement where it is narrow, nor more than 6ft. where it is wide enough to admit of such projection. Any deviation on account of special reasons is to be stated on the license.

No hoard is to have doors opening outwards. No scaffold is to be inclosed so as to prevent passengers passing under it.

The lower stages of scaffolds are to be close or doubly planked, each stage to have fan and edge boards, and such other precautions to be taken as the Inspector of Pavements requires, to prevent dirt or wet falling upon the public, or for the public safety.

No materials are to be deposited below any scaffold.

If, in the opinion of the Inspector, it is necessary for the public safety, a hoard license to be granted instead of a scaffold license.

Where practicable or needed, a boarded platform 4ft. wide, and as much wider as may be necessary for the traffic, with stout posts, rails, and wheel kerbs on the outside of it are to be constructed outside the hoard or scaffold, as the Inspector may direct.

Where the Inspector thinks it necessary in the public interest, applicants shall form a gantry stage or bridge over the public-way, so as to allow the foot-traffic to pass beneath it. The gantry is to be double planked, and so constructed as to prevent dust, rubbish, or water falling upon the foot-passengers, and the license shall keep the public-way beneath it clean to the satisfaction of the Inspector.

Hoards and scaffolds are to be watched and lighted at night.

All fire hydrants must be left uninclosed in recesses, formed of such size and in such manner as may enable the hydrant to be easily got at and used.

Public lamps are not to be inclosed without permission of the Inspector of Pavements. When such inclosure is permitted, the applicant shall put a lamp or lamps temporarily outside the hoard or scaffold, so that the public-way may be properly lighted.

The licensee shall undertake to employ and pay the Contractors to the Commission, to make good the pavements, lamps, and all works disturbed, to the satisfaction of the engineer.

NOTE.—A new scale of charges for using any hoard for advertising purposes is now printed, but not issued; it is a *prohibitive* one, the space on the hoards in best positions being charged at the rate of 4d. to 6d. per foot super. beyond the license for hoard. As soon as issued, it will be printed in these articles.

MASON.

HOPTON WOOD STONE (*Continued*).

		£	s.	d.
Half sawing	per foot super.	0	0	8
Plain work to beds and joints	ditto	0	1	6
Ditto rubbed to faces	ditto	0	2	0
Sunk work	ditto	0	2	6
Ditto rubbed	ditto	0	3	0
Moulded work	ditto	0	4	0
Ditto circular	ditto	0	5	6
Sawn paving, random courses, 1½in. thick, under 4ft. long, laid complete	ditto	0	0	11
Ditto 2½in. ditto	ditto	0	1	3
Ditto 1½in. ditto under 6ft. long	ditto	0	1	0
Ditto 2in. ditto	ditto	0	1	2
Ditto 2½in. ditto	ditto	0	1	5
Add if in courses to dimensions	ditto	0	0	1
Sawn landings up to 4ft. square, fixed complete	per foot super.			
Ditto 5in. ditto	ditto	0	3	10
Ditto 6in. ditto	ditto	0	4	6
Ditto 7in. ditto	ditto	0	5	6
Ditto 5ft. square				
Ditto 5in. ditto	ditto	0	4	0
Ditto 6in. ditto	ditto	0	4	9
Ditto 7in. ditto	ditto	0	5	9
Ditto 6ft. square				
Ditto 5in. ditto	ditto	0	4	3
Ditto 6in. ditto	ditto	0	5	6
Ditto 7in. ditto	ditto	0	6	0
Sawn square or bevel steps up to 5ft. long 5in. thick	ditto	0	3	7
Ditto 6in. ditto	ditto	0	4	3
Ditto 7in. ditto	ditto	0	5	3
Ditto up to 6ft. long				
Ditto 5in. ditto	ditto	0	3	10
Ditto 6in. ditto	ditto	0	4	6
Ditto 7in. ditto	ditto	0	5	6
Ditto up to 7ft. long				
Ditto 5in. ditto	ditto	0	4	0
Ditto 6in. ditto	ditto	0	4	9
Ditto 7in. ditto	ditto	0	5	9
Hearthstones to given dimensions at 1½d. per foot super. over paving price.				
Sawn stone, 3in. thick, not exceeding 6ft., delivered, with profit, but not fixed	per foot super.	0	2	6
Ditto 3½in. ditto	ditto	0	2	9
Ditto 4in. ditto	ditto	0	3	0
Tombstones sawn to dimensions, delivered, and including profit but not fixing	per foot cube	0	7	9

DOULTING STONE.

		£	s.	d.
Stone in block at depot	per foot cube	0	1	10
Ditto including cartage within 4 miles of depot	ditto	0	2	2
Ditto including waste, hoisting, and setting	ditto	0	3	2
Half-sawing	per foot super.	0	0	3
Plain work to beds and joints	ditto	0	0	7
Ditto rubbed to faces	ditto	0	0	10
Sunk work	ditto	0	1	2
Ditto rubbed	ditto	0	1	5
Moulded work	ditto	0	1	6
Ditto circular	ditto	0	2	0
Add for stopping	ditto	0	0	4
Ditto short lengths	ditto	0	0	4

BEER STONE.

		£	s.	d.
Stone in blocks	per foot cube	0	1	9
Quarry-worked stone, including waste and setting and profit, and plain work to beds and joints	ditto	0	3	10
Ditto delivered within 4 miles	ditto	0	3	10
Ditto, and including plain work to faces	ditto	0	4	0
Ditto ditto circular	ditto	0	4	2
Ditto and sunkwork	ditto	0	4	9
Ditto ditto circular	ditto	0	5	0
Ditto and moulded work	ditto	0	5	0
Ditto ditto circular	ditto	0	5	4
Add for stopping to plain work	ditto	0	0	2
Ditto and sunkwork	ditto	0	0	3
Ditto and moulded ditto	ditto	0	0	4

PURBECK STONE.

This stone is very little used now, though a hard and durable one. It is best adapted fo pavings, landings, sinks, &c.

		£	s.	d.
Stone in blocks at depot	per foot cube	0	2	2
Ditto delivered within 4 miles	ditto	0	2	6
Ditto including waste, hoisting and setting, &c.	ditto	0	3	10
Half-sawing	per foot super.	0	0	5
Plain work to beds and joints	ditto	0	1	1
Ditto rubbed to faces	ditto	0	1	6
Ditto circular	ditto	0	1	10
Sunk work	ditto	0	1	9
Ditto rubbed	ditto	0	2	0
Ditto circular	ditto	0	2	6
Moulded work	ditto	0	2	6
Ditto circular	ditto	0	3	6
Add for stopping	ditto	0	0	6
Ditto short lengths	ditto	0	0	6
2in. tooled paving in random courses	ditto	0	1	1
Ditto in straight courses	ditto	0	1	4
2in. rubbed ditto	ditto	0	1	7
Old paving taken up, squared, and relaid	ditto	0	0	4
Add if set in cement	ditto	0	0	1
Tooled steps 12 by 6 set complete	per foot run	0	3	6
Small rounded corners	each	0	0	9
Plain ends	ditto	0	1	0
Small ditto as to entrances	ditto	0	0	6
6in. tooled sinks fixed complete	per foot super.	0	4	0
7in. ditto	ditto	0	4	6
Rounded corners	each	0	0	9
Holes	ditto	0	1	3
Channel stones sunk and tooled, 5in. thick	per foot super.	0	3	6
Add for steps	ditto	0	1	0
Ditto for holes	ditto	0	2	0

CASTLE HILL SCOTCH STONE.

		£	s.	d.
Self-faced paving laid complete with sawn edges, 1in.	ditto	0	0	8
Ditto 1½in.	ditto	0	0	10
Ditto 2in.	ditto	0	1	0
Ditto 2½in.	ditto	0	1	1

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			£	s.	d.
Self-faced paving, laid complete, tooled, with sawn edges—	1in.	per foot super.	0	1	0
Ditto	1½in.	ditto	0	1	0
Ditto	2in.	ditto	0	1	1½
Ditto	2½in.	ditto	0	1	2½
Half-rubbed ditto,	1in.	ditto	0	1	0
Ditto	1½in.	ditto	0	1	1
Ditto	2in.	ditto	0	1	2½
Ditto	2½in.	ditto	0	1	4
Fully rubbed	1in.	ditto	0	1	1
Ditto	1½in.	ditto	0	1	2
Ditto	2in.	ditto	0	1	3½
Ditto	2½in.	ditto	0	1	5
Self-faced landings, including setting, &c., complete,	2½in.	ditto	0	1	3
Ditto ditto	3in.	ditto	0	1	5
Ditto ditto	3½in.	ditto	0	1	8
Ditto ditto	4in.	ditto	0	1	10
Tooled ditto, ditto	2½in.	ditto	0	1	6
Ditto ditto	3in.	ditto	0	1	8
Ditto ditto	3½in.	ditto	0	1	11
Ditto ditto	4in.	ditto	0	2	1
Half rubbed ditto	2½in.	ditto	0	1	8
Ditto ditto	3in.	ditto	0	1	10
Ditto ditto	3½in.	ditto	0	2	1
Ditto ditto	4in.	ditto	0	2	4
Fully rubbed ditto	2½in.	ditto	0	1	10
Ditto ditto	3in.	ditto	0	2	0
Ditto ditto	3½in.	ditto	0	2	4
Ditto ditto	4in.	ditto	0	2	7
Coping, feather-edged and throated—	12 by 2	per foot run	0	1	1
Ditto	12 by 2½	ditto	0	1	2
Ditto	12 by 3	ditto	0	1	3
Ditto	12 by 3½	ditto	0	1	4
Ditto	17 by 2	ditto	0	1	8
Ditto	17 by 2½	ditto	0	1	9
Ditto	17 by 3	ditto	0	1	11
Ditto	17 by 3½	ditto	0	2	1
Ditto parallel and throated both edges	13 by 2	ditto	0	1	3
Ditto	13 by 2½	ditto	0	1	4
Ditto	13 by 3	ditto	0	1	6
Ditto	13 by 3½	ditto	0	1	8
Ditto	18 by 2	ditto	0	1	8
Ditto	18 by 2½	ditto	0	1	10
Ditto	18 by 3	ditto	0	2	0
Ditto	18 by 3½	ditto	0	2	3
Ditto	22 by 2	ditto	0	2	2
Ditto	22 by 2½	ditto	0	2	5
Ditto	22 by 3	ditto	0	2	8
Ditto	22 by 3½	ditto	0	2	10
Tooled window-sills, weathered and throated	8 by 2½	per foot run	0	1	6
Ditto	8 by 3	ditto	0	1	8
Ditto	8 by 3½	ditto	0	1	10
Ditto	8 by 4	ditto	0	2	0
Ditto	9 by 3	ditto	0	1	8
Ditto	9 by 3½	ditto	0	1	10
Ditto	9 by 4	ditto	0	2	2
Ditto	10 by 3	ditto	0	1	10
Ditto	10 by 3½	ditto	0	2	0
Ditto	10 by 4	ditto	0	2	2
Ditto	11 by 3½	ditto	0	2	2
Ditto	11 by 4	ditto	0	2	4
Steps, rough face, sawn edges set complete—					
Ditto	12 by 2½	per foot run	0	2	0
Ditto	12 by 3	ditto	0	2	2
Ditto	12 by 3½	ditto	0	1	6
Ditto	14 by 2	ditto	0	2	4
Ditto	14 by 2½	ditto	0	2	6
Ditto	14 by 3	ditto	0	2	8
Ditto	14 by 4	ditto	0	3	0
Ditto rubbed					
Ditto	12 by 2½	ditto	0	2	2
Ditto	12 by 3	ditto	0	2	4
Ditto	12 by 3½	ditto	0	2	8
Ditto	14 by 2½	ditto	0	2	9
Ditto	14 by 3	ditto	0	2	11
Ditto	14 by 3½	ditto	0	3	1
Ditto	14 by 4	ditto	0	3	3

CRAIGLEITH STONE.

Stone in block at Camden per foot cube not exceeding 5 cubic feet			0	4	8
Ditto 10	ditto		0	5	2
Ditto 15	ditto		0	5	8
Ditto 20	ditto		0	6	2
Ditto 25	ditto		0	6	8
Ditto 30	ditto		0	7	2
Ditto 35	ditto		0	7	8
Add for cartage within four miles			0	0	5
Add for waste by hoisting and setting		per foot cube	0	1	6
Plain work to beds and joints...		per foot super.	0	1	6
Ditto to tooled faces		ditto	0	1	10
Ditto circular		ditto	0	2	6
Sunkwork tooled		ditto	0	2	4
Moulded work tooled		ditto	0	3	3
Ditto circular		ditto	0	4	6

KENTISH RAGSTONE.

Rough rag, delivered within 4 miles of the Thames		per ton	0	7	0
Ditto headers		ditto	0	13	0
Rough random walling, including labour scaffold, &c. ...		per yard cube	0	15	6
Ditto lined with hassock		ditto	0	17	6
Random-coursed work		ditto	0	19	0
Coursed header work		ditto	1	1	6
If lined with brick, add		ditto	0	6	0
Ditto hassock ditto		ditto	0	2	0
Hassock, roughly squared, labour only		ditto	0	0	3½
Ditto fine squared		ditto	0	0	4½
Ditto for interior walls		ditto	0	0	6
Ragstone ashlar, scappled out only		ditto	0	2	3
Gulletting joints		per foot super.	0	0	2
Hammer-dressed face		ditto	0	0	4
Ditto and cutting to groins		ditto	0	1	0
Pointing with blue-ash mortar		ditto	0	0	2
Labour to beds and joints		ditto	0	0	9
Ditto to plain picked face		ditto	0	0	10
Ditto finely ditto		ditto	0	1	0
Ditto tooled face		ditto	0	1	2
Ditto sunk face		ditto	0	1	6
Ditto ditto fine tooled		ditto	0	1	10

STONE WALLING.

This work is usually done with native stone procured near the job, and the average cost of this is 5s. per foot cube for royalty, quarrying, and cartage.

		£	s.	d.
Random rubble wall in foundations	per yard cube	0	14	0
Ditto in piers and projections	ditto	0	15	0
Ditto in walls not exceeding 20in. thick	per yard super.	0	9	6
Ditto not exceeding 14in. thick	ditto	0	8	0
Extra on above for random-coursed scappled facing, 7in. on bed average, the beds and joints roughly squared, and including flat pointing	ditto	0	2	6
Ditto to coursed facing ditto	ditto	0	3	3
Ditto random-coursed rock or pitched facing, including tuck pointing	ditto	0	3	9
Flat pointing to random work	ditto	0	0	9
Tuck ditto	ditto	0	1	4
Rough cutting to rakes & splays	ditto	0	1	6
Ditto circular	ditto	0	2	6
Relieving arches in scappled facings	per foot super.	0	0	6
Ditto in rock-worked facings	ditto	0	0	10
Rough squaring to quoins	per foot run	0	0	5
Ditto with dressed margin	ditto	0	0	9
Fair cutting to facing	ditto	0	0	3
Ditto circular	ditto	0	0	4
Levelling up walls	ditto	0	0	1½

NOTES FROM EDINBURGH.

BUILDING maintains a steady progress, and masons' wages now stand at 8d. per hour, which has not been the case since the failure of the City of Glasgow Bank, about ten years ago. Plasterers have also got an advance, and the prospects of abundant work are as good as hitherto. The large open space lying to the north of Leith Walk has long presented a notable contrast to the other side, now covered with streets, which have made Leith and Edinburgh one, and it will shortly be laid out for building on an extensive scale. The opening of the North Park, which is the finest for all purposes of recreation—large in extent, with pure air, and commanding the most beautiful views of the city, often seen in the purple light so dear to artists—will doubtless prove attractive to speculative building. The south side, with Academy Park between, is already built up, with tenements of fair character; but along the road of its northern boundary, two villas, of an inferior class and non-descript style, make conspicuous disfigurement of the landscape, and the authorities of the Fettes College, the proprietors of the ground, appear to be unaccountably indifferent to the style of buildings so near their own.

Along the Queensferry high road, the better class of tenements, in self-contained houses, are being carried westward. The School Board has found another school is required for the suburb, our population increasing yearly west of the Dalry district. It is to be built to accommodate 600 pupils at first, at a cost of £8,000; but will accommodate double that number when completed. Probably there is still something to learn in the way of school planning for larger schools, and more will have to be done in the way of multiplying class-rooms; the great impediment to good teaching in largely-attended schools being the enormous magnitude of the classes, especially in junior departments.

The Antiquarian Museum, removed many months ago from the Royal Institution Room, will be opened shortly in its new home in the National Portrait Gallery building in Queen-street. The Royal Archæological Institute meets this year in Edinburgh, and influential parties have recently opened an Exhibition of Heraldry in one of the upper rooms. This is free to the public, and will remain open for a month or two. It is the first of its kind, and well worthy of inspection. The Gallery of National Portraits has not proved so attractive to the general public as might have been anticipated. For one thing, the building is rather out of the circuit where most other things and places of public interest are found. Curiosity, once gratified, as to the personal appearance of celebrities, however great, is easily satisfied, and only those able to appreciate the merits of a picture as a work of art will care to revisit it. The rooms where they are placed are also ill adapted for exhibition of such works from lack of a top light, and the upper rooms, where the exhibitions of prints and statuary are placed, would be much more suitable. The great proportion of floor to wall space available for pictures on the second floor suggests the idea (if it could be carried out) of combining the more popular collection of antiquarian exhibits with the national portraits. The two could be made illustrative of each other, and the former more interesting, if only by the variety secured.

The collection of heraldry, though in the greater portion unintelligible to any but those well versed in the science, has a vast number of articles interesting on other grounds, either as works of artistic decoration, or from their antiquity and historical importance. The prefatory note to the catalogue states that many subjects have been placed at the disposal of the committee, which are not only valuable in themselves, but which have never previously left the custody of their owners. The number of the exhibits is considerably over the thousand, and a great number are under cover in cases at the walls, or in stands running along the centre of the room. The smaller apartment at the west end is also filled, and the antiquarian and heraldic student will be rather embarrassed with the multitude of ever-varied coats of arms and their devices. Of course, the genealogical tree, as the earliest step in the direction of a science of heraldry, has a conspicuous place in the collection, fortunately for outsiders, limited in number. The first in the catalogue is "The Genealogie of the most ancient and noble house of Douglas, the chiefs of which name and families have continued in great honour and love of their princes and country these 876 years or thereabouts, since the reign of Saluathius, King of Scotland," &c. &c. The tree, trained in espalier fashion is thickly covered over with conventional circular discs, each containing the name of the member and his spouse. On the right-hand side is a companion, giving the descendants of one of the Douglas family sent to the help of Charlemagne and the Pope against the Lombards, and who became Italianised.

Another, not quite so large, but more modern in design, and more artistic in arrangement, is the family tree of the Campbells of Glenorchy. This contains several highly-finished miniature portraits, with the characteristic red locks of the Highlanders. These were the work of G. Jamieson, and of superior character to the usual heraldic portraits.

The collection is rich in old manuscripts of all kinds, many with the heraldic exhibit on the seals attached, but many also righly emblazoned or illuminated in the text. The exhibition, in a word, has specimens of most articles which it was usual in the olden times to adorn with heraldic emblems.

An interesting exhibit of this kind is a coloured drawing of the blue blanket of the Edinburgh trades, and the Cavers banner, or pennon, carried at the battle of Otterburn by the son of James II., Earl of Douglas. The banner is of sage-green silk, swallow-tailed, with heraldic devices, and the legend "Jamais Ariere." Besides the banner are laid the gauntlets of Percy which he displayed on his lance till the Douglas overthrew him in personal encounter. They are very curiously embroidered on white satin, which, however, has lost its pristine beauty. The ancient banner of the Scott or Buccleuch family, called the Bellendain Banner, is a smaller specimen, and not so artistically decorated.

Another department contains the habiliments and insignia of the heraldic officers, King at Arms, &c. The crown worn by the Lyon King at Arms on great state occasions is shown under cover, and along with it the collar, badge, and garter of the famed Order of the Garter, and others. The silver rod of the Heritable Usher of the White Rod of the old Scottish Parliament is exhibited in an adjoining case.

There are a large number of architectural drawings of interiors and portions of ancient buildings, of which the decoration is heraldic. Many of these appear to be originals of the drawings in "Castellated Buildings of Scotland," published by M'Gibbon and Ross. There are others by T. Bonner and Gibb.

Among the curiosities of the collection may be mentioned the leading strings of James VI., said to have been the work of Mary Queen of Scots, and with which she taught him to walk. They are made of rose-coloured broad silk ribbon, richly fringed and embroidered with gold and silver thread, with heraldic emblems on the broader parts, and an appropriate text of Scripture on the reins. The hand-bell of Queen Mary is also here, and the book of hours she used in her last moments. The collection has many samples of old oak carving, including one of the oak doors of Stirling Castle, much curious

embroidery, utensils of various kinds, plateaux and plates, mugs, &c, all richly decorated with heraldic devices. Among these there is the back or remnant of a chasuble in blue silk, decorated with lions, lilies, and peacock, carrying three upright feathers on their backs. The cross is of crimson silk almost covered with scrolls and armorial bearings of appliqué work. All these numberless examples indicate how great a place the science of heraldry once held in architecture and the arts of daily life.

There are many curious prints, such as the Assembling of the Scots Parliament, when a long procession winds its way to a low, wooden inclosure, at the end of which the king is seated on his throne, with a table in the centre. A similar engraving, in three pictures, shows the funeral procession for Queen Elizabeth. A very interesting exhibit is the parchment containing the protest of the Nobles of Bohemia against the burning of Huss and Jerome, of Prague. It is in good preservation, with a fringe of appended seals to the number of 99.

The seals exhibited are very numerous, and many of great antiquity. That of Richard II. of England, is a large one, with legend, and knight with lance in rest. In many the impression is very indistinct, but in others the reverse; indicating that the art of engraving had reached some perfection in former days. The seals of the Bishops and Archbishops of St. Andrew's, from 1140 to the time of James Sharp, and of the principal Scotch burghs (Glasgow and Edinburgh excepted), with the Great Seals of Scotland, from that of Duncan II., 1094, to that of Charles II., are themselves a large collection.

DEPARTMENT OF SCIENCE AND ART.

THE art report of the Department of Science and Art for last year is not very interesting reading, though of some statistical interest. Referring to last year's national competition, the examiners on modelling, H. H. Armstead, R.A., and H. Thornycroft, R.A., allude to a "notable improvement in the treatment of the living model in relief, and also in reliefs adapted from the antique figure." They express a hopefulness that this improvement may continue, for such relief treatment is important in decorative modelled work, which is expressly fostered by the Department. The limitation of plastic art is better understood, and there is more skilful execution. The examiners in textile designs and hangings, E. J. Poynter, R.A., W. Morris, Walter Crane, and Alan S. Cole, judiciously point out that "mere ingenuity not resulting in a pleasing whole is of no great value." Many very elaborate and skilful pattern designs are intricate, but show no composition, so that the hanging or wall-paper, when seen at a little distance, reveals no plan, no arrangement of parts. All appears confusion. The Department would do more if they insisted on arrangement and composition as essentials. Designs for wall-papers have, the examiners say, been remarkably poor; the metal-work is pronounced to be faulty in style, and labour wasted in inorganic ornamentation. Is not this a fault largely attributable to the system of study pursued in the schools of the Department—viz., that of copying old examples before technical principles and the elements of adaptation of materials for design have been taught? Careful copying of old metal-work or designs is a useful training in forming style; but it does not implant ideas—our experience of it is that it rather calls into exercise faculties which interfere with and blind our perception of invention. The copyist is the "book worm" of art, and has no more claim to be recognised as an artist than a transcriber of an old volume can be called an author.

With reference to the science schools, it is to be regretted there should be a decrease in the number of schools or separate institutions in which science is taught, though in the number of classes of those institutions there is reported an increase of 281, and in pupils under instruction of 2,508. Again, the number of students who came up for examination from 1,481 schools shows an increase of 820 on the previous year, in addition to 3,248 self-taught students and pupils from classes not entitled to claim payments on results who presented themselves for examination. The payments on results of schools, exclusive of those made to training colleges, for the year amounted to £103,453, or £9,656 more than in the previous year. It is interesting to observe that in geometrical drawing considerable diversity is found among the candidates. In many cases, almost every candidate passed, whilst in others the failures were enormous, attributed by the examiners to a difference in instruction. They also think that much of the teaching is indifferent. In building construction, the report by the examiner, Lieut.-Col. H. C. Seddon, R.E, shows that the total number of papers is less than that of last year by 12, due to a decrease in the advanced papers, there being an increase in both the Honours and Elementary stages. In mathematics (stages 1, 2, and 3) the work on the whole is said to be very satisfactory, some schools showing to much better advantage than others, and it is noticed that a larger number of highly-marked papers was received than that of the previous year. The answers in geometry are less satisfactory than those in algebra and trigonometry.

THE VENTILATION OF THE HOUSE OF COMMONS.

THE Select Committee appointed on June 22 to inquire into the ventilation of the House of Commons have made their report. The total cost of the suggested alterations is estimated by Mr. J. Taylor, surveyor to H.M. Office of Works, at £4,735. They recommend that for the better general ventilation of the House of Commons, including the Debating Chamber, the Committee and other rooms, Libraries, and corridors, the existing inlets for fresh air drawn from the Terrace be enlarged and altered; and, further, that in order to provide an increased area of intake, the rooms in the basement story on the river side (eight), now used for the storage of Parliamentary papers, also adjoining room used as a general store, be made available for providing additional air inlets. That for the purpose of improving the supply to the Debating Chamber of air drawn direct from the river front of the building a more powerful air-propeller be provided, and that the existing heating and air-filtering system be rearranged and enlarged. That additional facilities for the admission of air to the Debating Chamber be obtained by making openings beneath the Members' and Ladies' Galleries, while air should be brought into the Chamber at other suitable points. That the ventilation of the Committee rooms be improved by enlarging the existing inlets or by providing additional inlets by means of vertical tubes or perforated flooring, according to the requirements of each room; also that the extraction shafts, common to all the rooms, be furnished with back-pressure valves, in order to prevent down-draughts. That the system at present used for ventilating the Committee-room corridor be altered so as to be wholly independent of that of the general ventilation of the Committee-rooms. That double windows be provided for the whole of the Committee-rooms now without them. That means be provided for the admission of air at the eastern wall of the reading and tea rooms, the air to be introduced at a high level instead of as at present from the skirting near the floors of these rooms. That the existing water-closets and urinals in the library corridor be abolished, and that others be provided at the south end of the corridor. The Committee also report that they obtained evidence on the question of taking the air for the supply of the Houses of Parliament from a high level, rather than as at present from the ground level. The Committee were informed that the former plan was adopted at the opening of the present House of Commons in the year 1851, and was continued in use until 1854, when the entire system was reversed, and the Clock and Victoria Towers, which up to that time had been used as down-cast shafts for the admission of fresh air, were altered so as to become up-cast shafts for the extraction of vitiated air from all parts of the building. No specific reason for the change is recorded in the reports; but it appears to have been thought that an improvement in the ventilation of the House of Commons had been effected by the reversal of the system, and a similar course was followed in the House of Lords, apparently after mature consideration. The Committee find that the system of drainage established in 1886 works satisfactorily. The Committee are satisfied that no return of sewage or of sewer gases from the metropolitan sewer can enter those of the Houses of Parliament; and the Committee are convinced that no offensive smells or injurious emanations now proceed from the drainage system of the Houses of Parliament, which they are of opinion is as perfect as possible. The Committee recommend that the London County Council be requested to consider the desirability of improving the ventilation of their main sewers in the neighbourhood of the Houses of Parliament.

MASONRY AND STONE-CUTTING.*

By Lawrence Harvey.

(Thirty-Third Lesson.)

CIRCULAR STAIRS WITH SOLID NEWEL.

HERE the stairs are circular on plan, and instead of an open well-hole, there is a circular pier in the centre in which the end of the steps are notched, as in Fig. 216, or which is formed by the end of the steps themselves, as in Fig. 230. As the width of these kind of stairs does not usually exceed 3ft. between the central pier or newel and the exterior wall of the staircase, the treading line is taken half-way between the wall and newel. This treading line will be divided into a certain number of treads accord-to formula given in the thirtieth lesson. But in selecting the width of the tread especial care should be taken to obtain a clear headway of at least 6ft. 6in. between the treads of the steps below and the soffit of the steps above. Usually, the division of the stairs into 16 steps per convolution will be found convenient.

There are several ways of forming the steps according to circumstances. The simplest is the one shown in Fig. 216, where both the riser and the back of each step converge to the centre of the stairs, and the steps are simply placed one above the other, without any rebate at the joint. The back of the steps may be either left square, as in several of the circular stairs in St. Paul's Cathedral, or the under side of each step may be worked off, as in Figs. 217 and 218, where the developments of the steps along the outside wall and the newel are shown. In the latter case the spirals on the soffit develop along straight lines. To work the surface of the soffit, the outer spirals (Fig. 217) and the inner spirals (Fig. 218) are divided in an equal number of parts and then are connected respectively by straight lines.

The steps may be simply notched into the newel, the outline of the notches (Fig. 219) being obtained by winding on the newel the development (Fig. 218), or each step may comprise a section of the newel, as in Fig. 220.

Instead of having a stepped surface for the soffit of the stairs, a continuous surface is often used, as in Fig. 221, of which Fig. 222 is the development along the wall, and Fig. 223 the development along the newel.

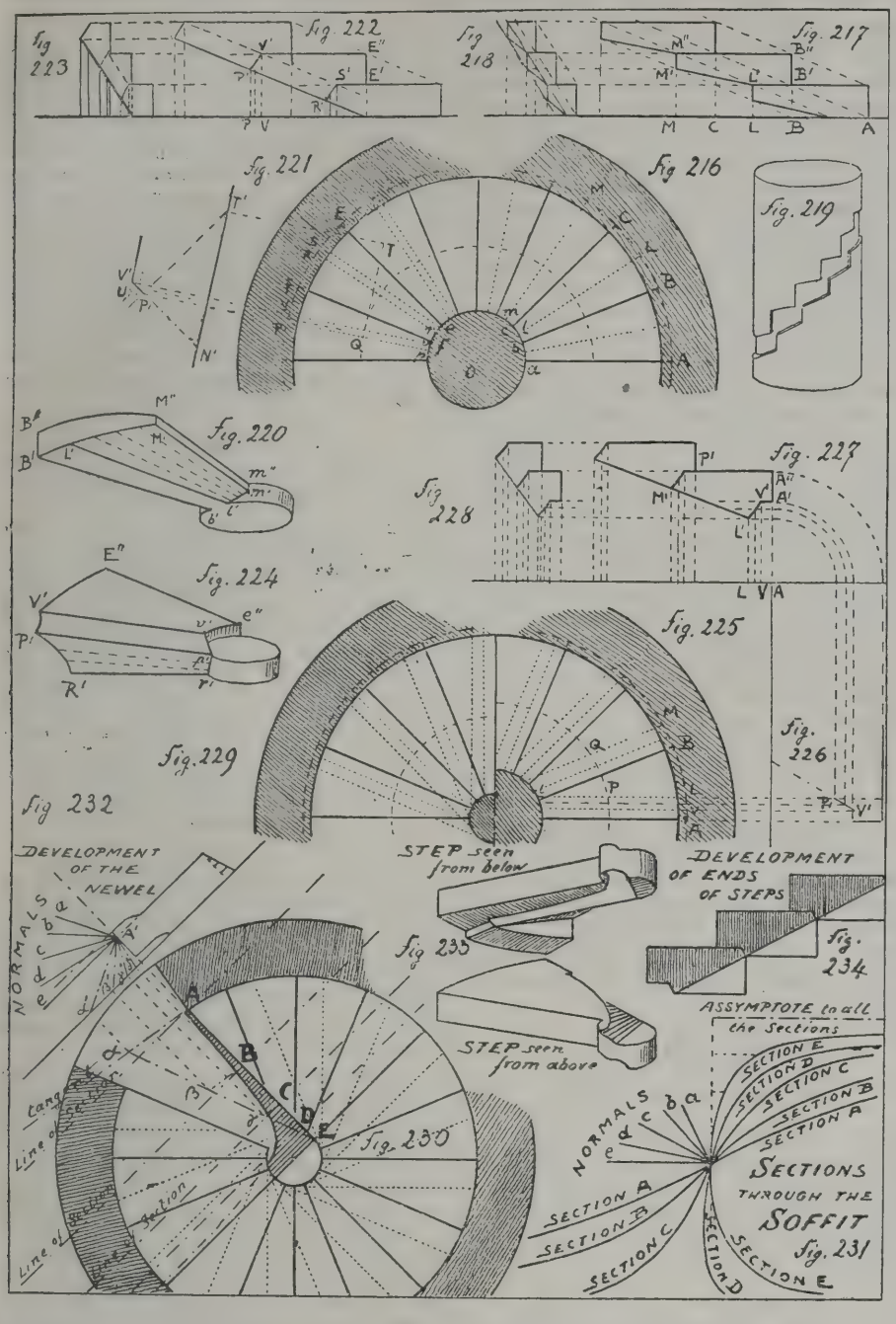
The joint P p is convergent to the centre of the staircase, and the soffit forms an helicoid exactly identical to that which comprises the upper arrises of the steps, but placed at a lower level. It is evident by Figs. 222, 223, that if the joint were to be made normal to the soffit, it would have to be a twisted surface; but in Fig. 221 the joint is made plane, and is only normal to the soffit in the mid-point Q. The construction for finding the normal in Q is shown on the left-hand side of Fig. 221. The length of the two steps of the treading line is developed in Q T; taking an elevation parallel to Q T, we have P' at the level of two risers above the ground-line; this allows us to draw the inclination of the tangent P' T' and the normal P' N'. The normal is cut in V' by the tread of the step.

On the developments along the wall and along the newel (Figs. 222, 223) the joint appears as a segment of an ellipse, for it is there the intersection of cylinders by a plane not parallel to their centre lines. To get these curves, an intermediate point is found, as shown in Figs. 221, 222.

Here, again, the steps may comprise a slice of the newel; but, as each slice of the newel must be of the height of the riser E' E'' (Fig. 222), it follows that the portion of the step forming the joint S' R' would be below the slice of the newel. As this portion would present a very sharp angle next to the newel (Fig. 223), the lower plane of the newel is kept at the level of R', and the upper plane of the newel is dropped below the tread of the step, as shown in Fig. 224.

In both the former modes of constructing the

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steps there is a narrow strip of stone, where the step joins on to the newel, which is a cause both of weakness in the step and of waste of stone in the working thereof. To avoid this defect, the steps are usually made as in Figs. 225 and 229, where the joint does not converge to the centre of the stairs, but runs parallel to the riser of the step immediately above it. Such is, for instance, the form of the steps of several of the circular stairs in St. Paul's Cathedral. In Fig. 225 the steps are shown housed in a central pier. In Fig. 229 each step comprises a slice of the newel, which is so narrow that the joint-line of the step is tangent to the cylinder of the newel.

Now, in the construction adopted in both the Figs. 225 and 229, it is clear that the surface of the soffit of the stairs does not resemble the helicoidal surface, which comprises the upper edges of the steps, but it is a surface of quite another character. The soffit is here generated by a horizontal line, which moves in contact with a spiral identical to the treading line, and has to remain also in contact with a vertical cylinder, the cylinder which forms the newel of Fig. 229. When the step is housed in a central pier, as in Fig. 225, the joint may be plane, so as to be normal in the point P. But a plane joint, as shown in Fig. 229, will give very bad results.

To find out how this joint should be formed, cut the soffit of the same kind of stairs (Fig. 230) by vertical planes in A, B, C, D, E at right angles with the joint, and you will obtain the curves shown in Fig. 231. Now, in considering these curves, it is evident that the joint at E should be horizontal, whereas at the other end of the step in A it should have the very steep inclination of the normal *a*. This shows that the joint must necessarily be a twisted surface.

To determine the surface of the joint, produce a paraboloid formed by a horizontal line sliding on the tangent to the spiral along the soffit in contact with the wall in A, and sliding also on the vertical line E of the cylindrical newel. We know that this paraboloid will be in perfect contact with the soffit all along the joint A E (that is, the soffit and the paraboloid will have the same tangent planes in every point of the joint line); then, of course, the normals to both the soffit and the paraboloid will be identical. These normals are *abcde* (Fig. 232), and their intersection with the plane of the tread of the step gives the curve shown on plan. When the curve reaches the circumference of the newel, the intersection of the cylinder of the newel with the normals of the joint is drawn as shown in the development (Fig. 232). These lines are then drawn on cardboard moulds, which serve to delineate them on the stone step. The form of the step may be perhaps better understood by the views given (Fig. 233).

The author begs to add that a staircase formed of sixteen steps was constructed according to this design by the Upper Class of Masonry at the City and Guilds of London Institute, and the steps were quite as easily and rapidly worked as those with plane joints. The author can, therefore, recommend this construction as the most practical as well as the best construction of circular stairs where a continuous soffit is required.

Merely, as an interesting point of geometry, it may be observed that the intersection of the plane of the tread with the surface of the joint is an hyperbola. The joint is simply the same paraboloid as the one tangent to the soffit, but turned round one-quarter of a circle. The guiding plane of the joint is therefore vertical instead of horizontal; and, as we know, the sections of the paraboloid by planes at right angles with the directing plane are hyperbolas.

IMPORTANT PRACTICAL OBSERVATION.

When the steps of circular stairs comprise a slice of the newel, and are housed deep into the staircase wall, it is very important that the wall be built of freestone of the same height of bed as the steps themselves; otherwise the wall of the staircase will settle more or less than the newel, and in that case the steps will be broken at their narrowest end near the newel. If the outer wall of the staircase is to be built in brick—say, as a turret to a brick building—the steps should be simply housed a few inches in the outer wall, and should be built after the wall of the turret has had time to settle. If it be desired that the steps go through the wall, as shown in Fig. 230, then the outside of the turret should be decorated with pilasters or chains of freestone, which will practically support the ends of the steps, the brickwork being a mere filling of the panels within these features of freestone. Lastly, the same result may be obtained by using cement instead of mortar, for in that case there will be no settling.

As it is important that the newel and the outer wall be submitted to the same pressure, it follows that, if a turret containing a circular staircase has to be covered with a stone vault, that vault should bear equally on the newel and on the exterior wall. In fact, it should resemble the ceiling of the Chapter House of Westminster Abbey.

Before closing this lesson on circular stairs, I beg to call attention to a most comprehensive work on circular stairs, entitled "Die Bau-Steinerner Wendeltreppen," by Professor Rauscher, to be seen at Batsford's, 52, High Holborn.

CHIPS.

A new statue of St. Mary Magdalen, for Magdalen Tower, Oxford, has just been finished by Mr. Conrad Dressler. The old statue, some 300 years old, has fallen to pieces, and the college authorities therefore instructed Mr. Dressler to execute a fresh one. In addition to the statue, Mr. Dressler has been engaged upon an altar-front for one of the Oxford churches. The design represents Mary and Joseph leaning in adoration over the infant Jesus, who is lying at the foot of the Tree of Life. The work is in copper, electrotyped.

The church of St. Leonard, at Chapel, Lincolnshire, was re-opened last week after restoration by the Bishop of Nottingham. The little church, instead of being one of the ugliest, has now become one of the prettiest in the neighbourhood. It has been re-pewed throughout, a new porch and a new vestry have been added, the floor has been lowered and laid with tiles, and four windows with cathedral glass have been inserted; while a new prayer-desk, lectern, altar table, altar cloth, and altar rails have been provided. The work has been carried out under the direction of Mr. J. Fowler, F.S.A., architect, of Louth, the contractor being Mr. Hobson, of Hogsthorpe. The expense will be about £300.

The new church of St. James, Frederick-road, Aston, Birmingham, has been opened. Mr. J. H. Chatwin, whose plans were selected in competition, is the architect, and the builder is Mr. T. Collins, of Tewkesbury. Owing to the lack of funds, the nave is of corrugated iron lined inside with pitch-pine. The chancel is of terracotta brick with white facings, and relieved by red bands, and the roofs of deal timber. The chancel measures 40ft. by 19ft., the chancel aisle 18ft. by 14ft., and the organ chamber is of similar dimensions on the other side of the chancel. Accommodation for 500 or 600 persons is provided.

St. Paul's English Wesleyan Chapel, Penmaenmawr, was opened on Sunday. Mr. J. Wills, of Derby, is the architect, and Mr. Williams, of Upper Bangor, the contractor. The cost has been £2,700.

Alterations have been made to Barnsley Workhouse, embracing the ventilation, which is now carried out on the Boyle system, the latest improved form of the self-acting air-pump ventilator being adopted for the extraction of the vitiated air.

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ILLUSTRATIONS.

NEW MUNICIPAL BUILDINGS, COATBRIDGE, N.B.—FACTORY IN GOLDEN-LANE, E.C.—DESIGNS FOR A TENNIS PAVILION, &c.—"WHITMEAD," TILFORD, SURREY.—OLD HALL, ROUGH LEE.—ST. MARK'S CHURCH, DUNDELA.—LONDON AND SOUTH-WESTERN BANK, STROUD GREEN.—LOUIS SEIZE DECORATION.

Our Illustrations.

COATBRIDGE MUNICIPAL BUILDINGS.

About two years ago the Coatbridge Town Council agreed to erect a town hall and municipal buildings at a cost of about £25,000. The master of the works (Mr. A. M. G. Mitchell), was instructed to prepare plans for three separate sites. The plans were publicly exhibited, and the design marked No. 1 was approved of. The elevations were treated in the French Renaissance style with clock tower in the centre; owing, however, to the cost being about £36,000, this larger scheme was abandoned. Design No. 2 was, therefore, selected, its cost being nearest to the sum agreed to be expended. The main façade is to Dunbeth-street, with frontages to Kildonan and Muiry-hall-streets. The town hall is situated at the corner of Kildonan-street, with a grand entrance from Dunbeth-street. The basement floor is occupied by a fire-engine station, caretaker's house, registrar's and chamberlain's offices, police cells, production rooms, &c. On the ground floor there is a grand entrance hall (54ft. by 34ft.), the floor of which is laid with mosaic tiles, and having an oak panelled dado to the walls with marble columns to the staircase. Leading off the main entrance we pass into the big hall, which is 108ft. by 53ft., provided with sitting accommodation for 2,000 persons. Provision has been made for an organ in a recess at back of the platform. Branching off from the main entrance hall a corridor leads to the reception and committee rooms. The municipal part of building is occupied by the town clerk's offices, the magistrates' room, the police-court (37ft. by 25ft.), the cells, a charge-room, superintendent-room, male and female witness rooms, &c. On the first floor is the gallery of the hall and a promenade over the main entrance, adjoining which is the lesser hall. The municipal part of the first floor is occupied by the master of works office, the council chamber, 37ft. by 25ft., the police barracks, with reading and recreation-rooms, dining-room, sergeants' room, bath-room, and 15 bedrooms for the accommodation of the police. The stone is from Gatelawbridge quarries, and supplied by Messrs. Thomson and Sons. We publish a general view of the buildings and the two principal plans.

FACTORY, ETC., GOLDEN-LANE, E.C.

The premises illustrated are in course of erection in Golden-lane, City, for Messrs. I. and R. Morley, of 18, Wood-street, from the designs, and under the superintendence of, Mr. Henry J. Treadwell, F.S.I., of 2, Waterloo-place, Pall Mall, S.W. The buildings have a frontage to Golden-lane of about 90ft., and to Brackley-street of about 112ft., and will consist of eight floors, including a basement and a sub-basement. The basements will afford spacious storage room for goods in bulk, a van-dock being provided in Brackley-street, with descending table-lift worked by hydraulic power. The upper portions of the building at Golden-lane end will be devoted to the purposes of a factory, while the upper floors at the other end of the building will be devoted to sleeping accommodation for about 120 porters. This latter portion of the building will be distinct from the business premises, and will be approached by a separate staircase. A central area lined with white glazed bricks affords thorough ventilation and light to the bedrooms and corridors. A spacious library and a smoking-room is provided for the use of the men; also lavatories, baths (hot and cold), and all necessary conveniences. A separate "sick-room" is provided in case of illness, communicating with the housekeeper's apartments. Special attention is being given to sanitary requirements and ventilation, both in the factories and living-rooms. The different portions of the building are separated by party-walls and fireproof floors, every precaution being taken to prevent the spread of fire. Communication between the different portions, where necessary, is by means of "fireproof compartments" built up from the sub-basement. All staircases are of fire-resisting material, and inclosed in brick walls. All constructional wood or iron work will be cased with concrete, plaster, or other fire-resisting material. Fire hydrants and escapes will be fixed. The lighting throughout will be by means of incandescent electric lamps, the electricity being generated upon the premises. The elevations are simple, though bold in character, being designed principally with the idea of obtaining as much light as possible in the factories. The materials used are brown Portland stone and Lawrence's red Bracknell bricks, the base and polished mouldings below ground-floor windows being in grey Cornish granite. The ground-floor story is entirely of stone. Messrs. Ashby Bros., of 6, Union-court, are the general contractors. Mr. Osborne is the clerk of works.

"BUILDING NEWS" DESIGNING CLUB: DESIGN FOR A TENNIS PAVILION.

(See description on page 138.)

"WHITMEAD," TILFORD, SURREY.

This house is about to be erected at Tilford, near Farnham, Surrey. The walls, including all mullions, &c., are of red brick. The roofs are covered with red tiles. Mr. Pink, of Milford, is the builder; Mr. Edwin L. Lutyens is the architect.

ROUGH LEE HALL, LANCASHIRE.

For the romantic associations connected with Rough Lee Hall, or the Witch's House, as it is called, I would refer readers to Ainsworth's "Lancashire Witches." Though a fair specimen of a Lancashire squire's house of the time of Elizabeth, its chief interest lies in the fact of its having been the residence of Mistress Alice Nutter, a lady of rank, who was executed at Lancaster Castle for witchcraft in 1612. Built in a deep, narrow valley at the foot of Pendle Hill—the long back of which, some 1,850ft. above the level of the sea, appears over a succession of lesser heights rising immediately behind the old hall—the seclusion of its situation is most impressive, and quite in keeping with what is known as to its history. Perhaps the most noticeable feature architecturally is the chimney-stack at the east end, with its Norman-like arcading, reminding one of another instance—viz., Barcroft Hall, in which Norman detail has been introduced in Elizabethan or Jacobean work. On the north side of this portion, which was probably the kitchen wing, a small stone vaulted cellar projects from the main building. The principal entrance was at the west end, but is now inclosed by an erection of later date. Internally the building has been much altered, having been converted into four separate tenements, two only of which are now occupied. The detail throughout is very simple, but not coarse. The square oak floor-joists are exposed to view, and have a small sunk mould on the underside. The chimneypieces have stone corbelled jambs and lintels, and in the bedrooms the roof timbers are exposed to view.

J. Langham.

LOUIS-SEIZE DECORATION.

The accompanying illustration shows rather more than half the room-side, the fireplace being central. The relief of the mouldings forming the panels is very slight, and their being gilt and the gold being carried into the panels in parts takes off from the prominence that the panelled forms may appear to have in the drawing. The colourings are: frieze, blue and gold on a paler turquoise blue ground; heads and ornament and boys between painted figure panels warm grisaille on black ground; principal panels, dark green, grey, and gold festoons and ornament on pale-green ground, with white and black in small portions and turquoise-blue margins; pilasters coloured ornament on dark grey-blue ground; dado more or less neutral; rosewood and satin-wood furniture with metal mounts, with needle-work screen and arm-chair cover.

Walter Hensman.

SOUTH KENSINGTON MUSEUM EXTENSION COMPETITION.

MR. ASTON WEBB, F.R.I.B.A., is the author of the chosen design for this great work at South Kensington, and after seeing the designs we can unhesitatingly express our entire approval of the choice which has so carefully been made. The contest was a severe one—all the more honour to the victor, whose plans were marked "S. K. M." The style chosen is somewhat ornate, with a free use of the round arch, floridly treated, a vast amount of rich detail being introduced. The façades have angle towers of Oriental character, and a fine campanile. We shall notice the designs more at length next week. The drawings are excellent.

CHIPS.

A recipe for an application for removing old paint and varnish from woodwork is given in the *Bayerische Gewerbezeitung*. Two parts of ammonia are shaken up with one part of spirits of turpentine, forming a permanent emulsion, which is applied to the paint to be removed. In a few minutes the paint will be softened, so that it can be scraped or rubbed away. This application is said to have been successful in removing old paint which had resisted the action of strong lye.

At Tuesday's meeting of the London County Council, a letter from Captain Shaw was read declining to withdraw his resignation as chief of the Fire Brigade. Considerable discussion arose with regard to Mr. Walter Emden's plans for a proposed new theatre on the site of Waterloo House, in Cockspur-street. It was stated that the Council had been threatened with a mandamus if they did not pass the plans. It was eventually resolved, by 44 votes to 6, to communicate to the Lord Chamberlain the Council's opinion that the site was unsuitable for a theatre, and that a similar communication should be sent to the office of Woods and Forests.

The Roman Catholic church of St. Wilfrid, Bishop Auckland, was recently reopened by the Bishop of Hexham and Newcastle. The church was built about half a century ago, and has just undergone repairs, alterations, and improvements. The building has been re-roofed, a new porch built, pitch pine seats substituted for the old ones, and a modern hot-water apparatus provided for the church, sacristy, and presbytery. The sanctuary has been enlarged, and a new altar railing and pulpit, both of carved oak, been erected. The interior of the sacred edifice has been decorated, and new gas fittings supplied throughout. The work has been carried out under the direction of Messrs. Dunn, Hansom, and Dunn, of Newcastle, at a cost of £800.

The parish church of Ashby-by-Partney, near Newark-on-Trent, was reopened, after restoration, last week. The restoration was effected by Mr. Kime, of Candlesby. The whole of the seats have been replaced by new ones of Baltic timber with heads of pitch pine, and the roof has been stained. The floor has been paved with Worcestershire tiles (Webb's), and a new pulpit of oak and reading desk of pitch pine, new oak rails, and new cover for the communion table of dark green cloth have been provided. New windows of cathedral glass (from Messrs. Bourne's, Birmingham) in diamonds of tinted green have been placed in the nave, and green and pink in the chancel.

The site for the new General Post-office in Victoria-street, Liverpool, contains about 8,300 square yards. It is situated near the centre of the chief business part of the city, and is almost equidistant from the different railway termini. It is believed that the cost of acquiring the site and erecting a suitable building will not exceed £400,000.



ST. MARK'S CHURCH, DUNDELA.

NEW memorial chancel and transepts have just been erected in memory of Sir Wm. Ewart, M.P. The part of the church to which this memorial addition is attached, and which has been used for Divine service up to this time, consisted of a dignified nave, with north and south aisles to it, and a western tower and stone spire, about 150ft. high. The new memorial chancel is 36ft. long by 25ft. broad, and the transepts are each about 20ft. long. The chancel roof is continued at the same height (of about 60ft.) as is the nave roof, with a result of great unity and stateliness to the completed pile. The transepts add much to the importance of the whole, both within and without. A new and handsome pulpit of oak, walnut, and stone has been provided. Internally, the cornice of the chancel roof is adorned with angels in oak along both sides of it, and the interior has been finished with substantial materials. The walls have been ashlared in stone. Indestructible mosaic adorns them in their arcades and plain surfaces. The abbreviated form of the name "Jesus" forms a central pattern in the mosaic decoration of the east wall. The pavement is in tiles. The architect is Mr. William Butterfield, of London, the designer of Keble College and Chapel, Oxford. The builders of the chancel and transepts were Messrs. S. and J. Martin. Thus completed, the church building is amongst the finest in the diocese. Mr. Richard Quiller-Lane contributed the sketches which we herewith publish.

BUILDERS' BENEVOLENT INSTITUTION.—ANNUAL MEETING.

THE forty-fourth annual meeting of this Institution took place on Thursday, July 23rd, at the new offices, No. 35, Southampton-row, Bloomsbury-square, W.C. Mr. William Shepherd, President, occupied the chair, and amongst those present were Messrs. B. E. Nightingale, Thomas Stirling, W. J. Mitchell, W. Scrivener, E. B. Ellis, and other friends of the charity.

Major Brutton, secretary, read the report, which stated that seven pensioners had died and four others had been elected, there being now 20 males and 34 females dependent upon the fund. The committee took the opportunity of earnestly impressing upon the subscribers and those who had not hitherto assisted that to maintain so many pensioners liberal annual subscriptions and donations were requisite from the members of the building and kindred trades. Unless this were complied with, the number of pensioners would have to be reduced, or the yearly stipend curtailed. It was also the case that the usual annual contributions did not admit of the election of all who, by force of necessity, were compelled to seek the benefits of the charity, and should the income not be increased, this difficulty could not be overcome. The receipts for the past year had been sufficient to meet the expenditure, largely owing to the exertions of the president (Mr. Shepherd), to whom the committee expressed their obligations. The annual dinner will take place, by the favour of the Worshipful Company of Carpenters, in their hall, on Thursday, Nov. 5, when Mr. B. E. Nightingale, who has consented to accept the position of President of the Institution for the ensuing year, will preside.

The Chairman moved the adoption of the report, which was seconded by Mr. Thomas Stirling, and unanimously agreed to.

The Chairman also proposed the following addition and amendment to the rules: Rule II., section 1a.—"A firm shall exercise all the advantages of donations given in its own name so long as any one of the original donors remains in the firm."

The motion was duly seconded and agreed to *nem. con.*

Cordial votes of thanks were passed to the president, vice-presidents, trustees, treasurer, committee, and auditors.

The Chairman then proposed that Mr. B. E. Nightingale be the president for the ensuing year.

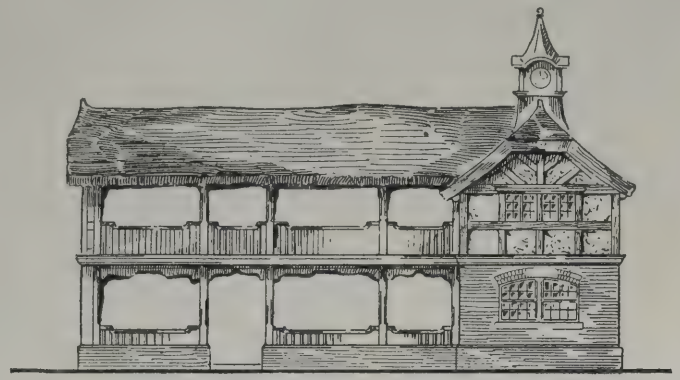
Mr. W. Scrivener seconded the resolution, which was cordially received, Mr. Nightingale promising to do his utmost for the interests of the charity.

A hearty vote of thanks was passed to the Chairman for presiding, and the meeting separated.

A convalescent home at Seaford, accommodating 50 men, and built at a cost of £15,000, was opened by the Duke of Cambridge on Monday.

PLACED · SECOND ·

Scale of 12 6 0 1 2 3 4 5 6 7 8 9 10 Feet



Front Elevation.

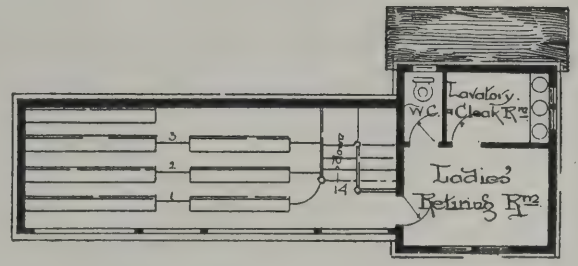


Side Elevation.

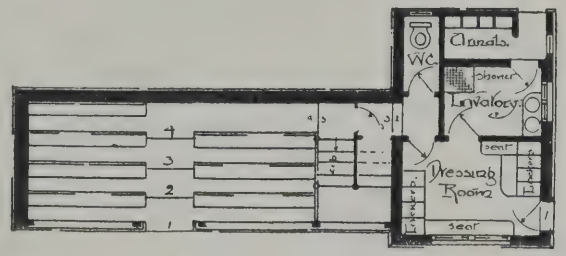
B·N·D·C·

A Tennis Pavilion, & Club Summer House.

by 'Spectre'



First Floor Plan.

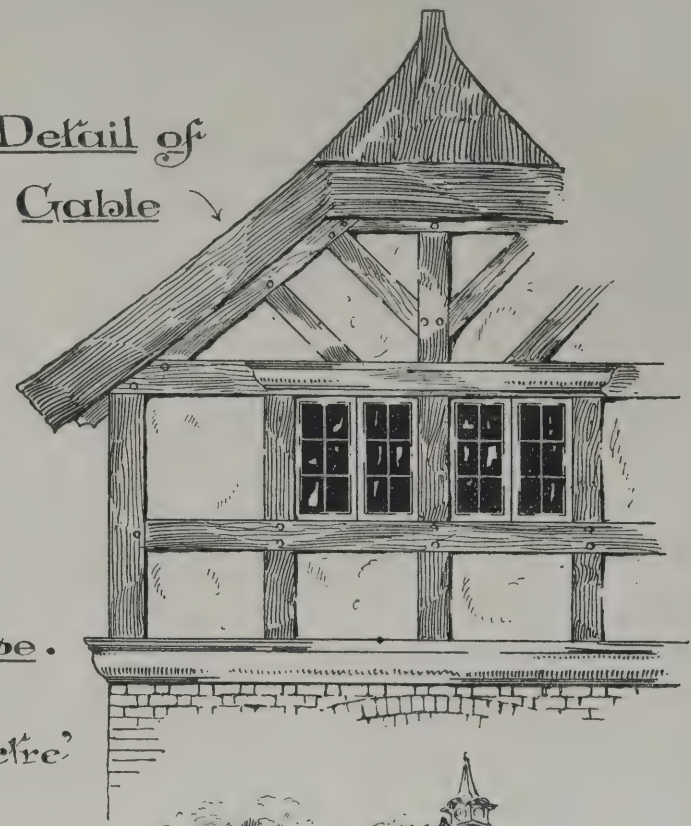


Ground Plan.



Section

Detail of Gable





Sketch.

DELLAGANA S.

10 5 0 10 20 30 40 50 Feet

WAYSIDE NOTES.

SIR THOMAS FARRER made a good speech with reference to the future of the Metropolitan water supply at the last meeting of the County Council, and touched upon the question of a new supply—an important question, and one which is rather neglected in the semi-political struggle for the controlling of the present supplies. Sir Thomas pointed out that Birmingham was prepared to go to Parliament next year with a scheme for appropriating one of the best sources of supply, situated in Mid-Wales, and remarked how undesirable would be a scramble for water between Birmingham and London. There is, perhaps, little fear of any such scramble; at the same time, as I have often said, London should be ever watchful as to possible sources for her water supply, at such date as the present supplies are proved either unfit or insufficient. And not only watchful, but wakeful and energetic, or her large towns will be thinking of tapping sources that would well serve the London demand. Perhaps the County Council's committee are going into this matter fully, and will report on the various possible sources of supply. It is probable, as Sir Thomas Farrer has laid stress upon this point, that the Special Committee charged with the water question will issue an elaborate report in due course. It would prove an interesting document, and, in the eyes of those who look beyond the mere question of control, deal with a subject of vital importance, even if the importance be not evident to everyone at the present day, when there is water and to spare.

In the sad Gateshead disaster there is some point or another to be explained. That large structures such as the condensers that collapsed like a house of cards should so fail, is a fact that unsettles many of one's ideas as to the stability of buildings of this type. One thing that seems to clear itself of the mists of uncertainty that surround the occurrence is that stonework is an unsuitable material to employ anywhere where fire and heat are concerned. There appears to have been a considerable quantity of masonry in the condensers. Indeed, the foreman of the unfortunate manufactory attributes the collapse of the first shaft to the action of the heat upon the flagstones at its base. This is a slightly different theory from that which ascribes the fall of the condenser to the cold water thrown on the fire with the intent to extinguish it. Practically, however, it is the same, and goes to prove what was said above, that stonework of any kind, and concrete of any ordinary kind, should not be employed in positions where there is any likelihood of heat and fire. Bricks and firebricks are the proper materials in such places, speaking generally; for it must be admitted by those ignorant of the exigencies of the particular business and manufacture, that there may have been reasons necessitating the stonework in these Gateshead condensers.

More news concerning "The Tower," as proposed, at Wembly Park. Much of it seems to be published periodically, such, for example, that an estate of 280 acres has been purchased," &c., &c. The real "news" concerns the foundations. These are to consist of four concrete blocks, 25ft. by 20ft. by 25ft. deep. The excavation for one of these blocks is nearly completed. The elevation of the site at Wembley Park is about 140ft. higher than the site of the Eiffel Tower. The ironwork of the "Wembley Tower"—as there seems some probability of the edifice becoming popularly styled—will be 1,000ft., and will stand on a pedestal 150ft. high. The total height will thus be 1,150ft., and the highest part will be 350ft. above the level of the Paris tower. The press were invited to inspect the works on Saturday last, and according to the *Standard*, "there is undoubtedly an attractive settlement being formed, which, if it can be always reached with the promptitude of Saturday's journey, should prove a popular place of resort as well as residence." This should cause speculative builders to be on the alert, and perhaps induce our friend Mr. B. to run down to Wembly and prospect the site and ascertain the nature of the road scrapings of the district.

There is some possibility of the erection of an observatory at the summit of Mont Blanc. At a meeting of the Academy of Sciences, at Paris, on Monday last, M. Janssen, who last year proposed such an observatory, announced that his appeal for assistance had been responded to. M. Bischoffsheim, member of the Academy of Sciences, Prince Roland Bonaparte, Baron Alphonse de Rothschild, and M. Eiffel have offered their assistance, so that it will be possible to undertake at once the preliminary work for the establishment of the observatory. The difficulty will be in obtaining a foundation on the solid rock. The thickness of ice is doubtless very great, and will have to be penetrated, or the scheme will be futile, it being of course absolutely indispensable for an astronomical observatory that the foundation should be of the most enduring description. None seems to know the exact thickness of this ice. If it be very great, the idea of the observatory will have to be abandoned. M. Janssen's Alpine guide thinks it is of no considerable depth. In any case, the preliminary works—boring for the rock—must be very hazardous. M. Eiffel proposes, in place of sinking shafts, to cut a horizontal tunnel through the ice, so that the workmen may be sheltered from cold and storms. If the attempt be successful, it is evident that the cost of the completed observatory will be very great, and the difficulties of construction, carriage of materials, &c., enormous, so that an account of the works from commencement to completion would form a most interesting book. As to the result, the clear air of the summit of Mont Blanc would certainly render the proposed observatory most useful to science.

The timber trade complain that the revised Railway Rates are much against them. "A West Coast Timber Merchant" explains that the system of machine weighing, as distinct from measurement weight, is an innovation likely to cause the trade considerable expense in the fitting-up of weighing machines, unless the merchants be willing always to accept the railway companies' statements of weights as correct. It may be as "West Coast Timber Merchant" says; but he alludes to railway companies much as he would to dishonest grocers, or fruit-hawkers in the City, as addicted to frauds in weighing. On the point of convenience of measurement *v.* weight he is doubtless correct, and some expense may be caused to those who have to provide weighing-machines; but ignoring the question of convenience to either parties, the system of measuring by weight is fairer, seeing that timber of the same class may vary in weight. It would be interesting to hear others in the timber trade upon this question.

A praiseworthy attempt is being made to protect the rights of the public to sail the length and breadth of the Norfolk Broads. These pleasant holiday haunts are much too precious to Londoners to become a thing of the past, and financial assistance to the Defence Fund that has been raised will be money well bestowed. GOTH.

The local board of Torquay adopted last week reports by Mr. J. Abernethy, engineer-in-chief, and Mr. Inglis, acting engineer, as to the work required in the conversion of the pier into a promenade. A further outlay estimated at £8,700 is determined upon, bringing the total expenditure up to £55,100.

At the London Consistory Court on Monday, Dr. Tristram, the chancellor of the diocese, granted an application for a faculty to restore St. Matthew's Church, Great Peter-street, Westminster, and to add a vestry with chapel over on the north side of chancel, at a cost of about £1,000.

The Lord Mayor and Sheriffs on Monday visited Whitechapel, and laid the memorial stone of a new free library and museum in the High-street, nearly facing the church. The building, which is being erected from plans by Mr. J. Hennings at a cost of about £12,000, will have a frontage to the High-street of 40ft., and will extend to the rear 130ft. The lending library, large reading-room, and rooms for boys and girls will be placed on the ground floor, and on the first floor will be the reference library and museum.

A mission-house is being added to St. Frideswide's Church, Poplar, for the accommodation of sisters trained at Clewer. The building will have on the ground floor a clubroom, recreation-room for girls, parish-room and soup-kitchen, and the refectory and kitchen for the community. On the first floor will be the guild-room, oratory, and five small rooms. On the floor above are nine bedrooms, a bath-room, and a work-room. Messrs. Clarkson, of High-street, Poplar, and Great Ormond-street, W.C., are the architects.

THE LONDON CARPENTERS' STRIKE.

THE negotiations which took place on Monday last between the representatives of the master builders and the carpenters have not as yet resulted in any nearer approach to a settlement of this unfortunate dispute. At that meeting, which was held at 31, Bedford-street, Covent Garden, the offices of the Central Master Builders' Association, eight of the nine delegates appointed by the Association were present, Mr. Trollope's place being taken by Mr. G. Henshaw, jun., assistant secretary, and nine delegates nominated by the United Trades Committee. It was stated that the employers would maintain the present rate of wages, 9d. per hour, but proposed that the hours of working should be 52 per week for 40 weeks, and 47 during the remaining 12 weeks in the year. As to payment for overtime, they would give 1s. per hour till 8 p.m., 16d. per hour from 8 till 10 p.m., and double time (18d.) after the latter hour. The carpenters' representatives replied that they were not in a position to accept such terms as these, and asked for time to consult the members of the trade as to further action. At a general delegate meeting held on Tuesday, it was decided to refuse the masters' proposals altogether, and to convene an adjourned meeting for last (Thursday) evening, to discuss the point whether they should draw out more men from firms still in work, or endeavour to submit the matter to arbitration. At the time of our going to press, nothing had leaked out as to the course likely to be adopted at this meeting.

The United Trades Committee are receiving substantial contributions from branches and other trades, including £120 to hand on Wednesday from the Ironfounders' Society, while the Australian Strike Fund Committee voted the United Trades Committee, at their meeting at Mile End on Tuesday, a donation of £400 from the balance in hand.

CHIPS.

An inquiry was held at the Grays Local Board offices on Thursday morning, the 23rd inst., by Major-General C. Phipps Carey, R.E. (Local Government Board Inspector), in respect to the Local Board's application to borrow £1,100 for the erection of a fire-engine station, and of a shed for a steam roller, and for other purposes. Mr. C. Cobham, F.S.I., surveyor to the board, explained the plans which he had prepared for the station.

In the Norwich Bankruptcy Court last week, William Evans, of South Walsham, builder and contractor, was examined. The accounts showed liabilities of over £1,800 and a deficiency of £850. The debtor said he succeeded his father in February, 1888; he had not kept any records or ledgers. The examination was adjourned till August 26.

The Polytechnic Institute at Chelsea, of which the Prince laid the foundation-stone on Thursday in last week, is being built from plans by Mr. J. M. Brydon.

The thirty-fourth annual meeting of the Kent Archæological Society was held on Monday, when Town Malling was visited. At the annual meeting Earl Stanhope occupied the chair, and a report was read by the hon. secretary, Mr. Geo. Payne. Malling Abbey was then inspected, under the guidance of the Rev. C. H. Fielding and Mr. E. P. Loftus Brock, and St. Leonard's Tower and the churches of Town Malling and East Malling were afterwards seen.

On Wednesday week the foundation and memorial stones of a new Wesleyan Sunday-school at Winsford, built on the site of one condemned on account of its dilapidation, due to subsidence, were laid. The new building will be constructed of red brick, having terracotta panelling, terminals, and scrolls. The height of the building up to the eaves will be 24ft., length 100ft., and breadth 36ft. The architect is Mr. Cawley, Northwich, and the builder Mr. J. Fowles, High-street, Over.

A joint meeting of the Watford local board and the Watford rural sanitary authority was held on Wednesday week, when it was decided to carry out a joint sewerage scheme for Watford and Bushey, in accordance with a scheme proposed by Mr. Urban A. Smith, the county surveyor of Herts. The total saving to be effected by the combination is estimated at £11,958.

An abortive strike in the building trades for an eight-hour day took place in Pittsburg last month. The cause of the failure of the strike is said to have been the omission of the officers of the federation of labour to pay the strikers the wages they had promised.

Building Intelligence.

Bath.—New premises in Milsom-street, built for the Bristol and West of England Bank, were opened on Saturday. The elevation is Classic in character, Shap granite being employed for the rusticated basement, and Corsehill sandstone and red Mansfield stone for the rest of the work. The basement provides book-room and strong-room, carried out with steel lining, and faced with glazed bricks. In the public portion of the bank the woodwork of the glazed partitions is oak, and the counters and entrance doors of teak, richly moulded, the floor being laid with keramic mosaic. All the fittings have been designed and carried out specially for the bank. A yellow Mansfield stone chimney-piece, with delicate carving, is fixed in the angle of the bank. The whole of the work has been carried out by Messrs. Hayward and Wooster, except the carving, which was done by Mr. Sheppard, of Bournemouth. The decorations were by Mr. Beaven, jun., Bradford-on-Avon. The bronzes, gas-fittings, &c, have been supplied by Messrs. Singer and Sons, of Frome, and the mosaic by Messrs. Craven, Dunnill, and Co., of Jackfield. The architect was M. Alfred S. Goodridge, A.R.I.B.A., of Bath.

Guernsey.—The Forest church, dedicated to St. Margaret, and consecrated in 1163, was reopened on the 15th inst., after extensive alterations, from plans by Messrs. R. Knill Freeman, F.R.I.B.A., and S. Denison Robins, architects and surveyors, of Newcastle-on-Tyne. The chief feature of the restoration is the lowering of the floor level several inches. This has been done in order to expose to view the moulded bases of the pillars, which must have been covered up for some centuries. Many interesting relics were found during the excavation, chief among these being cannon-balls and silver coins. The floor, which formerly consisted of planks fixed on joists reposing on the ground, has been substituted by a parquet floor laid in pitch, a foundation of concrete having been previously made, the effect of which is a perfectly level surface dry and warm to the foot. The seating throughout, the choir stalls, and reading desk are from the designs of Mr. S. D. Robins, and are of pitch-pine. The Communion-table and lectern, which have been designed by the architects, are in oak, made by Messrs. Robson and Sons, of Newcastle-on-Tyne. The pulpit, the gift of the Misses Mansell, Le Chêne, Forest, is a very fine piece of oakwork made by the above firm. The whole of the windows have been reconstructed, and they are now filled with stained glass, the work being executed by Mr. G. J. Baguley, stained-glass artist, Newcastle-on-Tyne. Mr. W. Rabey, of Guernsey, is responsible for the masonry and plastering work; and the remainder of the contract has been carried out by the chief contractor, Mr. W. T. Robilliard, of Victoria-road, Guernsey.

Haydock, Lancs.—On Saturday, Bishop Royston formally opened the new parish church at Haydock, near St. Helens. It has been erected from plans prepared by Messrs. Douglas and Fordham, of Chester, and the total cost has been about £4,300. It was originally intended to replace the old parish church with the new erection; but the parishioners expressed a desire that the old, though small and inconvenient, church should be retained. The more commodious new place of worship has accordingly been built by its side. The design of the church is unique, the most prominent feature externally being a central tower with an octagonal spire 90ft. high. The upper part of the tower contains a belfry chamber. The building itself has an oak-timbered framework filled in with brick-work, in order to guard more effectually against any subsidence through the extensive coal-mining operations in the district. The total length is about 170ft., and the width, including the old parish church, with which it is internally connected by an arcade, 72ft. The height from the floor to the apex of the open-timbered roof is 38ft. The roof is covered with green slates. The floor of the church is of wood, and accommodation is found for nearly 600 worshippers. The heating apparatus has been provided by Messrs. John King, Limited, of Liverpool. The general contractor was Mr. Thomas Browne, of Chester.

Hull.—The new Victoria Hospital for children in Park-street was opened by the Marchioness of Salisbury on the 21st inst. Four years ago the plans submitted in competition by the late Mr. B. Musgrave were selected, and these have now been carried out under the supervision of Mr. W. H. Bingley, also of Hull, who assisted in the preparation. The Park-street elevation is in the Gothic style, of an Early French character, and is built of red stock bricks and Ancaster stone dressings. The main building is carried out in the plainest manner, with the strictest regard for economy. Its total cost, including furnishing, is estimated at £7,500. On the ground floor are two convalescent-rooms, 37ft. by 16ft., matron's room, and nurses' stores, and at the rear are the kitchen and scullery, the laundry being in a detached block. On the first floor, approached by a stone staircase, is the principal ward, 50ft. by 22ft., containing 16 beds, with bath-room, nurses' duty-room, service hoist, and linen store, and two smaller wards; the floor above is planned in the same manner. An entirely separate building facing Clarendon-street contains the out-door department. Messrs. George Jackson and Son, of Hull, have been the contractors, and Mr. J. Halcrow was the clerk of works. The warming and ventilating are effected by means of Shorland's double-fronted Manchester stoves, with descending smoke-flues and ornamental tiled sides; these stoves were supplied by Mr. E. H. Shorland, of Manchester.

Peterstone.—The 14th-century church of Peterstone-super-Ely was reopened on Thursday, the 25th inst., after undergoing restoration and redecoration, under the superintendence of Messrs. Kempson and Fowler, architects, Llandaff. The church was restored in 1855. A stained-glass window, in memory of the late Alderman Waring, has been erected at the east end, and a south chancel window has been given by Miss Llewellyn. A carved oak pulpit has been erected by the family of the late Rev. L. C. Lewis. The tower has been refaced, new buttresses put in, and a new parapet has been constructed. New floors have been laid, and an oak screen has been erected across the chancel arch. The new chancel seats are also in oak, the whole of the carving being done by Mr. Clarke, of Llandaff. The plastering and decoration of the interior of the church has been carried out Mr. Morgan, of Canton, Cardiff. The peal of six bells in the belfry have been recast and re-cast and rehung by Messrs. Taylor and Co., of Loughborough. The work has entailed an expenditure of £800; exclusive of the gifts.

Southwark.—A large extension to Messrs. Hayward Brothers and Eckstein's premises, under Messrs. Jarvis and Sons, architects, Trinity-square, S.E, has now been completed. This extension gives direct connection to the extensive foundry, erected about twelve months ago. The whole comprises as complete a block of premises as could well be desired. The show-rooms, offices, erecting and fitting shops, extensive, well-appointed foundry, pattern-makers' shops, and forwarding departments being carefully arranged to the three frontages, so that the raw material comes in at one side, and is completed and sent out finished from the other. There is a basement over the whole area, and Hayward's patent "semi-prism" lights have been used to the utmost, and although the width of lights on the pavement is very narrow, and patent lights being only on two sides, the effect is so wonderful that the basement is practically as light as the ground floor. There are many opportunities for showing the best way to utilise Hayward's patent lights in the pavement and stall-boards, and by the ingenious manner of forming bulkheads so that the light is not obstructed. The premises are well worth a visit both by architects and clients contemplating the erection or alteration of premises, as many good ideas can be seen in actual practice, both as to saving expense and gaining an effective light. Hayward Brothers and Eckstein have recently supplied Hayward's patent "semi-prism" lights to the new Town Hall, St. Martin's vestry; also to underground urinals, Charing Cross and Great Dover-street; also to Messrs. Bolding's new premises, which we noticed in a recent issue. We now find Mr. Willmore's business of Cottam and Willmore completely amalgamated with that of Hayward Brothers and Eckstein, and the large showrooms fitted with stable-fittings of various kinds, besides all kinds of iron staircases, ventilators, patent lights, &c. In the erecting shops are many iron staircases of all widths and heights, both spiral and straight. This class of work has been very much pushed by the firm late years, and special attention is given to t manufacture of iron, fire-escape staircases bei more necessary, to comply with the new A now in force to prevent loss of life by fire. T firm are to be congratulated on the success their foundry, which is full of work, and noticed the quality of the castings for sharpne of edge, &c., was exceedingly good, and not be excelled in London or elsewhere. This not surprising, perhaps, as the buildings a plant are so far ahead of anything we have se before for a foundry. The building is ve lofty, and has a plentiful supply of top light.

Westleton, East Suffolk. — The pari church was reopened on Thursday afternoon last week, the nave having undergone thorou renovation, which has been carried out Messrs. Cutting and Sons, builders, of Saxmun ham, under the superintendence of Mr. E. V Coldwell, architect, of 13, Bedford-row, Londo The inside walls have been entirely replastere the tower arch (which had been blocked up f upwards of 100 years) opened out, and a ne window placed in the tower. The buttresses the south wall have been restored, the outsi walls repaired and coloured, and oak stalls sul stituted for two old square pews in the chance These last are being executed by Mr. J. Fiske, of Westleton. The south side of t roof has been re-thatched with reed, and t north side repaired by Mr. Lambert, of Yoxfor The lay impropriator has also made good t thatched roof of the chancel, and will short take in hand the inside. The total cost of t work has been about £370.

Wolverhampton. — The memorial-stone the new chancel of St. Andrew's Church, Whi more Reans, Wolverhampton, was laid a for night since by the Right Rev. Bishop Bromb The church was opened in 1865, and extended 1870, but the accommodation is still below th required. By the extension now in progre about 250 additional seats will be provided, ar the estimated cost of the work is £2,800. Th new buildings consist of chancel, 36ft. 6in. b 22ft.; morning chapel, 36ft. 6in. by 17ft.; orga chamber, 22ft. by 15ft.; and choir-vestry an sacristy. The external walls are being execute in rock-faced Codsall stone, and the interior wi be faced with fine-tooled ashlar from the sam source, with wall-shafts and arcading, the shaf and sedilia being of blue Yorkshire stone. Th floor will be tiled, and the steps will consist Portland stone, with footpace of polished Devon shire marble. Internally the roof will be vaulte and boarded with red deal with moulded rib while externally the new portion of the churc will be covered with Broseley tiles. The ea wall will contain a five-light traceried window and an arched gateway surmounted with a gab and finial cross, will form the entrance to th church walk from Coleman-street. The style the work is Decorated Gothic.

At the Leicester Bankruptcy Court last wee William Walter Neale, a Leicester builder, again whose estate a receiving order was made in March applied for his discharge. The liability was £41 and the assets £302 17s. It was pointed out th 5s. in the pound had been paid by the debtor sureties towards a composition of 7s. 6d. in th pound, and the discharge was suspended for nin months.

The new cemetery at Blockley, Worcestershir was consecrated last week, when the memori cross to the late Lord Northwick was unveiled. It is Fourteenth-century Gothic in style, and wa designed and has been executed by Mr. Georg Clifford, for many years head mason on the North wick estate. It consists of a base, shaft, and Lati cross of Forest of Dean and Westington stone, an is 15ft. in height.

A design has been prepared for the window to b placed in memory of the late Dr. John Oakley Dean of Manchester, in the De Trafford Chapel, o the south side of the nave of Manchester Cathedra The proposed pulpit in the cathedral as a memoria of the late dean is now definitely abandoned, an this window is to serve in its stead. Mr. Ling the comptroller of the cathedral, has receive an intimation that the family of the late Mr Stephen Chesters, of that city, have undertake to defray the cost of the restoration of th south-west bay of the cathedral. When thi is carried out, the whole of the exterior restoratio of the cathedral will be completed, and the onl important work remaining will be the lowering o the floor. Mr. Lings has communicated with Mr Crowther, the cathedral architect, with a view t the preparation of estimates for the works.

Engineering Notes.

DOUGLAS, I.M.—The Douglas Head Marine Drive, the first section of which was opened with great ceremony on the 25th inst., has been constructed from the designs of Messrs. Jerram and Livingstone, engineers, of Westminster, and owing to the difficulties of construction, Mr. Jerram has given the work his constant personal supervision. Mr. Nowell, of Manchester, was the contractor, and Mr. F. Coulson, the contractor's engineer. The drive is throughout 40ft. in width, and will extend to Port Soderick, a distance of 4½ miles, all the land having been purchased. The road has been opened for half that distance, as far as the Walbery Cliffs, being constructed in alternate cutting and embankment along the cliff side, and is carried over a ravine at Pigeon-stream by a trestle bridge, while a suspension bridge will cross a wider ravine at the Horse's Leap. The toll-house at the entrance from Douglas Head is a castellated building.

ARCHITECTURAL & ARCHÆOLOGICAL SOCIETIES.

MIDLAND INSTITUTE: ARCHÆOLOGICAL SECTION.—An excursion was made by this section to Kingswood, on Saturday last. Mr. Jethro A. Cossins was the leader, and explained the features of the buildings visited. On leaving Kingswood station the party walked across the fields to Lapworth. There they saw the picturesque church, built in the 13th and 14th centuries, on the site of an earlier Norman building. Of this a specimen has survived in a small window, which has been left above the north arcade of the nave. The south wall of the nave is the old Norman wall, raised by the addition of 13th-century windows, its Norman lights having been decapitated, and in other places traces can be seen of the earlier building. There are signs of many altars, and over the western porch a reliquary chapel exists presenting curious features. After visiting the rectory gardens, and admiring the church and its battlements, rising picturesquely, tier upon tier, with the tower and a spire in the background, in their unusual position at the end of the north transept, the section walked to Packwood House, the beauties of whose half-timbered front are now shrouded by a coat of rough cast. Close by, within its moat, is Packwood Hall, an interesting example of domestic architecture.

SCHOOLS OF ART.

BIRMINGHAM MUNICIPAL SCHOOL OF ART.—At Tuesday's meeting of the Birmingham City Council, Alderman Kenrick, M.P., submitted a report from the School of Art Committee asking for authority to extend the Municipal School of Art, at a cost of £15,000, upon the land in Cornwall-street acquired for the purpose. Mr. Kenrick pointed out that there was a rent payable for the land of £246 a year, for which, while it was unbuilt upon, they got no return. It was further worth remembering that the cost of building materials tended to rise, and had already risen sufficiently to account for £1,000 of the increased estimate which was now presented as compared with that given when the land was acquired. The estimate had also been further increased by the greater accommodation now proposed to provide, and by better provision for heating and ventilation. The extension was needed for examination rooms, store rooms, and art laboratories, in which students in design might be brought into direct relation to the materials in which they would have to work, a need upon which stress had been laid by Mr. Walter Crane in his report upon the school. After a brief discussion the report was unanimously adopted.

The President for the time being of the Royal Institute of British Architects is among the nominated members of the new permanent governing body of the Imperial Institute.

The memorial to Marlowe, about to be erected on the site of the Old Bull Stake, at Canterbury, opposite the Christ Church gate of the cathedral, will be unveiled by Mr. Henry Irving on September 16 or 17. The memorial, upon which Mr. Onslow Ford, A.R.A., is still engaged, is to take the form of a drinking fountain, surmounted by a bronze statue of a muse, with statuettes representing leading characters from Marlowe's plays.

COMPETITIONS.

INTERMEDIATE SCHOOLS AT YSTALYFERA.—The Intermediate Education Committee, Ystalyfera, in an open competition for designs for the Intermediate Schools, have selected those of Messrs. J. Buckley Wilson, F.R.I.B.A., and Glendinning Moxam, B.S.A., architects, Swansea. These are, we believe, the first schools which have been approved of by the Glamorganshire County Council.

TOWYN.—Recently competitive designs were invited by Mr. John Corbett, for the laying out of a new estate at Towyn, premiums of £100, £30, and £20 being offered. Sixty-two sets of designs were received, and the award has been made as follows:—1st, Mr. W. Dunbar, C.E., Rhyl, £100; 2nd, Mr. Jas. B. Hipkins, Liverpool, £30; and 3rd, Messrs. Veall and Sant, Cardiff, £20.

WALSALL.—At the last meeting of this board plans for the new schools to be erected at the Pleck were considered, and on the recommendation of a committee, it was decided to adopt those under motto "Bruin." These proved to be by Mr. McConnall, of the Bridge, Walsall, who has been appointed architect.

CHIPS.

The Cardiff Corporation have awarded the widow of the man Sutton, who was killed in the Cardiff sewer on Saturday through an irruption of foul gas, £125, and to the mother of Tucker, another man who was killed through the same cause at the same time, £50. The sewers were ordered to be cleansed out. The Corporation exonerated the borough surveyor and his officials from all blame.

Two stained-glass windows have been placed in Christ Church Episcopal Cathedral, Lisburn (Down and Connor diocese), as memorials of the late Sir Richard Wallace.

Messrs. Wilson and Moxham, architects and surveyors, Swansea, have just completed a survey of one of the largest copper works in the world—viz., the Morfa Copper Works, Landore, near Swansea. The whole plan was drawn to a scale of 16ft. to the inch, showing all the machinery, furnaces, and everything in the minutest detail. The portion of works under cover is above 20 acres, besides the large piece of land which surrounds the works, which is many acres in extent.

Mr. Jasper Wilson Johns, J.P., D.L., late M.P. for the Nuneaton Division of Warwickshire, died on Sunday at his London residence, aged 66 years. He was educated as a civil engineer, and practised his profession up till 1854, when he joined the late firm of William Bird and Co., iron merchants, of London. He was an active promoter of railways in Wales.

New buildings are about to be erected in Park-place, Cardiff, to house the South Wales Institute of Engineers. In the basement will be a museum 54ft. by 21ft. 6in., and on the ground floor a lecture-theatre, seated for 250 persons, library, and secretary's room, and over these a conference hall and offices. Mr. E. W. M. Corbett, of Cardiff, is the architect, and the contract has been let at £8,000, exclusive of fittings, to Messrs. W. Thomas and Co., of the same town.

The Barnfield Hall, at Exeter, the headquarters of the Literary Society in that city, was opened on Friday. The building seats 600 persons, cost £2,000, and has been built from plans by Mr. John M. Pinn, of Exeter.

The foundation-stone of a new Free Church was laid on Friday at Lamlash, near Glasgow. The building will be Gothic in style, will seat 500 persons, and will cost about £2,000. Mr. J. Hamilton, of Glasgow, is the architect.

Mr. Urban A. Smith, county surveyor for Hertfordshire, has appointed Mr. H. W. Hart, of Watford, who was for many years surveyor to the Watford parish highway board, surveyor of highways for the Liberty of St. Albans.

On Thursday in last week a new Roman Catholic church, dedicated to Our Lady and St. Cuthbert, was opened at Prudhoe Hall, the seat of Mrs. Liddell. The church takes the place of a chapel which was erected 20 years ago, but which was found to be too small. It has been designed by Messrs. Dunn and Hansom, and has been erected on the north side of Prudhoe Hall. The architecture is of the Early Perpendicular period, and the building is constructed throughout of stone. The interior is very ornate, the carving having been the work of Mr. Boulton, of Cheltenham, while the altar and reredos are the work of Mr. Peall, of Newcastle. The baptismal font is a copy of the ancient font still in existence in the parish church of Shaddingfield, Suffolk. The nave roof is of pitch-pine, and the panelled ceiling of the sanctuary has been decorated by Messrs. Laidler.

TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, 332, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

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Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page advertisements and alterations in serial advertisements must reach the office by Tuesday Morning to secure insertion.

NOTICE.

Bound volumes should be ordered early (price Twelve Shillings each), as only a limited number are done up. A few bound volumes of Vols. XLI., XLIX., L., LI., LIII., LIV., LVI., LVII. LVIII., and LIX. may still be had, price Twelve Shillings; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

RECEIVED.—C. C.—Capt. J.—C. N. and C.—D. and L.—G. and T. E.—G. W. R. Co.—B. V. Co.—G. W.—P. W. B.

Correspondence.

THE SOCIETY OF ARCHITECTS.

To the Editor of the BUILDING NEWS.

SIR,—Having been honoured by re-election to the office of president, will you pardon my writing to urge upon the attention of your readers one or two points which largely affect the future interests of the society and of the profession?

Let me first congratulate all concerned on the exceptionally prosperous and progressive condition of our affairs, which is largely due to the energy and wisdom of our retiring president, Mr. Robert Walker.

The Society of Architects, now a large and well established body of practising architects, has, from the beginning, identified itself with, and may claim to have initiated, the movement for obtaining State recognition of architecture as a profession, dealing at once with the financial and hygienic interests of the community as intimately as do either law or medicine separately, and as one in which breeding, education, and integrity are as much to be required as in the registered professions?

This is by far the most important professional movement of our times, and it is destined to succeed if the member will individually recognise their responsibility, and will sacrifice a little time to it. Nothing will promote our cause so certainly and so rapidly as enlarging the membership of the society, and we could be 1,000 strong next year if each member would resolve to introduce one or more qualified gentlemen, either by the usual nomination paper or by sending to the council the names of gentlemen eligible under our rules, and who might be elected under our revised articles of association

by special invitation of the council. Some such names will, I feel sure, occur to each reader.

May I also remind readers of the advantage the practice committee affords to the members in offering to report upon difficult questions occurring in our practice. The publication of the excellent papers in our *Proceedings* is a further advantage, while our members can feel free to make use of the offices and rooms at St. James' Hall for business appointments and for correspondence.

The council will be glad to receive the names of those who will visit Belgium on the 15th prox. The excursion promises well.—I am, &c.,

W. HOWARD SETH-SMITH.

St. James' Hall, Piccadily, W., July 30.

PARAFFIN-COPAL MEDIUM FOR PAINTING.

SIR,—I have just seen Prof. Church's letter to your paper taking objection to the notice which you published together with the reproduction of my fresco in the Royal Academy refreshment room) of the manner in which I executed the work, considering it to attribute to me the invention of the "paraffin-wax" method.

The words of the notice (which were from information furnished by myself) run: "This artist, after carefully studying the merits and demerits of the various wall-painting methods, such as tempera, spirit-fresco, paraffin wax, &c., decided to employ paraffin wax." Then follows description of merits which decided me to employ the last of the three.

I fail to see anything in the notice to support Prof. Church's reading of it; however, I am only too pleased to have a chance of saying that I owe most of my acquaintance with the method to Prof. Church, who was most kind in giving me the assistance of his valuable advice.—I am, &c.,

W. REYNOLDS-STEPHENS.

33, St. Leonard's-terrace, S.W.

HOT-WATER ENGINEERING.

SIR,—Replying to "A. B.'s" letter, as the first part of the paragraph only made allusion to square inches and parts of square inches, it was intended that the pipe referred to should be understood to be one having half a square inch area. I must acknowledge it might have been expressed more precisely, although it does not materially affect the actual point under discussion. "A. B." is, however, strictly correct in pointing out such matters, and I thank him.—I am, &c., THE WRITER OF THE ARTICLES.

Intercommunication.

QUESTIONS.

[10594.]—**Japanning.**—Can any of your readers kindly give me any information of a new system of heating and japanning stoves, either by steam or fire, for drying paint suitable for bedstead works, and oblige?—J. R. R.

[10595.]—**Book on Levelling.**—Are there separate works exhaustively treating on levelling with the "Gravatt" or "dumpy" level? I want one for the use of my pupil. I have "Every Farmer his own Land Surveyor," in which there is a chapter devoted to the subject. Good as far as it goes, but it does not go far enough; it stops at the end of the rudimentary stage.—A. H.

[10596.]—**Safe Weight on Pier.**—What weight per foot superficial may be allowed to rest upon a rubble masonry pier built of hard sandstone (Carboniferous formation), with mortar composed of one part of Portland cement to two parts of ashes?—E. D.

REPLIES.

[10583.]—**Sketching Tour in Yorks.**—The following, in the main, is the outline of a sketching tour I made about fifteen months ago:—Day No. 1: Starting from Leeds, visit Kirkstall Abbey, and in the afternoon Bolton Abbey, taking train in the evening to Ripon; No. 2, Ripon Cathedral; No. 3, Fountains Abbey; No. 4, train from Ripon to Coxwold, to see Coxwold church, and walk to Byland Abbey; walk over the moor to Helmsley. 5th day, Helmsley castle and Rievaulx Abbey; 6th day, train to Malton, walk to Old Malton church, and train in the afternoon to Kirkham Abbey; 7th, Kirkham, and on to York by train; 8th day, York, to see the cathedral, St. Mary's Abbey, and Skelton church in the neighbourhood, and back to Leeds—or the tour could be extended by taking train on the 9th day to Howdon; 10th day, train to Selby, for the abbey, and back to Leeds. "J. B. M." may consider these ideas very scrappy; but if he cares to communicate with me, I shall be glad to give him further information, and also a hint or two which might be useful.—VERNON CROMPTON.

[10591.]—**Builders' Book-keeping.**—I am in a position to show a system of keeping builders' books, which I think is one of the best, and certainly the simplest. Prime cost of any job can be shown every week. My knowledge is from experience, which I have tested in every way. I shall be glad to communicate with your correspondent. I shall be disengaged shortly, and would be willing to show him.—J. ROBERTSON, 19, Andrew's-road, Hackney, N.E.

[10591.]—**Builders' Book-keeping.**—If "Constant Reader" will write to me, I can let him, or any other reader, have worked examples of a good system.—F. I. W., Eastbourne House, Argyle-street, Ryde, I.W.

PARLIAMENTARY NOTES.

THE CHANTREY BEQUEST.—Mr. De Lisle asked the Chancellor of the Exchequer on Tuesday whether the recommendations of the Royal Academy Commission Report, 1863, had been generally carried out; whether especially the recommendation "that to the 50 professional Academicians there should be added ten members not being artists, subject to the confirmation of the Crown," had been carried out; and if so, who were the ten lay members; whether the hope expressed in Sir Francis Chantrey's will, "that the Government will provide a suitable and proper building or accommodation for the preservation and exhibition of the bequest pictures as the property of the nation," had also been carried into effect, and if so, which was the suitable accommodation; and whether the pictures exhibited in the South Kensington Museum, labelled "Lent by the Trustees of the Chantrey Bequest," were recognised as "the property of the nation."—The Chancellor of the Exchequer: I need hardly remind the hon. member that the Royal Academy is not a Government department, or under Government control. Speaking generally, I understand that some of the recommendations of the 1863 Commission have been carried out and some not, and that the proposed addition of ten lay Academicians falls within the latter class. For further information on the subject, I would refer the hon. member to the Academy's observations upon the Commission's report, dated 15th March, 1864, and presented to Parliament in the same year; and also to their subsequent correspondence with the Office of Works, presented to Parliament in 1866. As regards the hon. member's last two questions, the hope expressed by Sir Francis Chantrey has not yet been realised. The pictures are merely lent temporarily to the South Kensington Museum by the trustees, and until suitable buildings or accommodation have been provided, the trustees may fairly hold that the pictures are not the property of the nation.

STAINED GLASS.

THE LATE JOSEPH GORDON, C.E.—A stained-glass window has just been placed in the parish church of Haltwhistle, Northumberland, to the memory of the late Mr. Gordon, formerly borough engineer of Leicester, and for a few months before his death Chief Engineer to the London County Council, and a distinguished native of Haltwhistle. It consists of a five-light Perpendicular window, and is the work of Mr. Kempe, of London. On the spectator's left is a figure of St. Cuthbert, one of the early Northumbrian bishops, and on the right is a representation of St. Oswald, the Northumbrian King who defeated Cadwalla and his pagan nobles somewhere in the neighbourhood of the church which bears his name, near the line of the Roman wall, and not far from the Wall village. In his left hand he carries a cross, the symbol by which, as the Venerable Bede tells us in his history of the Anglo-Saxon Church, he "inspired his army with faith in the justice of their cause, and nerved them with a courage and heroism which completely vanquished his foes." He holds a sceptre in his right hand, and on his head rests the crown of regal authority. He wears a bishop's mitre, and in his right hand holds a crosier. The window, which is close to the pulpit, bears the following inscription:—"To the Glory of God and in loving memory of Joseph Gordon, C.E., who entered into rest November 9th, A.D. 1889. This window has been erected by his widow and children."

NEWPORT.—A three-light, traceried, painted glass window for St. Wrolos' Church, Newport, Monmouthshire, will be on view for the next fortnight at Messrs. Belham's, 155, Buckingham Palace-road, S.W. The subject is: "Christ Among the Doctors in the Temple." The design is by Mr. John P. Seddon, architect, of No. 23, Grosvenor-road, Westminster, and the composition of the figures by Miss Maud Seddon, the cartoons and painting on the glass itself by Mr. H. Murray, Messrs. Belham's artist. The whole is executed in Messrs. Rust's antique glass.

A new volunteer drill-hall on the grounds of East Sandfield House, Guildford, was formally opened last week. It is an iron corrugated building 120ft. by 52ft. 6in., used at the Exhibition at Edinburgh last year. It has been floored with wood blocks by Messrs. E. and A. Miles, of Guildford. The total outlay has been about £1,000.

LEGAL INTELLIGENCE.

A VAGUE VERBAL CONTRACT.—MORRIS v. BAYLEY AND MOORE.—In this case, tried at the Notts Assizes on Monday, plaintiff, a builder, of Daybrook, claimed from the trustees under the will of the late Thomas Bayley £163 13s. 7d. under a contract for the erection of some small cottages. In March, 1890, an architect named Harriman prepared plans and specifications for defendants for four cottages, and plaintiff's tender for their erection was accepted. Before the work was commenced plaintiff was asked if he would build eight cottages for £1,000, which was agreed to, and he began to work on the eight cottages in May. Then it was arranged that one of the cottages should not be a private house, but a shop, making the contract one for the erection of seven houses and a shop. On June 3rd a second contract was prepared, in which there was no mention of any shop. No specifications were supplied, except for the first four cottages. The amount now claimed was the amount that had been in dispute between the parties on various items in the different contracts. The judge ruled that the plaintiff was entitled to be paid for extras on a *quantum meruit*, giving credit for omissions and deductions. His lordship also ordered this action to be referred to a referee to be agreed on by the parties or named by himself, subject to the omissions and deductions as aforesaid.

ST. HELEN'S, BISHOPSGATE.—In the London Consistory Court on Monday an application was made by the rector of the united parishes of St. Helen's, Bishopsgate, and the churchwardens for a faculty to carry out certain restorations of their church on plans submitted by Mr. J. L. Pearson, R.A. These plans included the erection of new vestries, the lowering of floors, the repaving of the church, altering the position of the pulpit, the re-glazing of windows, and the addition of three windows. The estimated cost was £7,000, of which the Charity Commissioners were prepared to advance £4,092, and the Merchant Taylors' Company would give another £2,000. Mr. John Codd, manager to Mr. J. L. Pearson, R.A., Mr. T. Rolfe, and Mr. E. G. Cherry having expressed their concurrence, the Chancellor said that, with regard to the slab now lying on the floor, and said to be the original *mensa* of the Lady-chapel, it would be safer to place it on wooden pedestals than to use stone for the purpose of raising it, as that would keep it within the decision that had been given by the Judicial Committee of the Privy Council. The Court would grant the faculty as prayed, subject to certain provisoes and certain consents. Before the faculty was issued he would inspect the church, so that he might be able to direct what proviso should be inserted.

IN RE W. SOARS.—At the Leicester Bankruptcy Court last week a solicitor applied for the discharge of Wm. Soars, builder, Leicester, whose liabilities amounted to £1,035, and his assets were £87 9s. 3d. He said the adjudication was made three and a half years ago, and the bankrupt had twice since applied for his discharge. The first time was in October, 1888, and the last in June, 1889. He was granted leave to apply again in two years' time. That period had now elapsed, and he renewed the application. He submitted that the bankrupt had been sufficiently punished for the smallness of the dividend.—The Official Receiver said he did not propose to ask his Honour to refuse the application, but he thought he should know that the bankrupt had been carrying on business on a rather extensive scale in his wife's name. Mr. Burgess presumed that if the application was granted the business would revert to Soars, and he would carry it on in his own name again.—The discharge was granted.

RELATIVE LIABILITY OF CONTRACTORS AND SUB-CONTRACTORS.—JOHNSON (PAUPER) v. W. H. LINDSAY AND CO.—(House of Lords Appeal, July 28, before Lords Herschell, Watson, and Morris.)—This was an appeal from a decision of the Court of Appeal affirming a judgment of the Divisional Court. The action, which raised a question of great importance as to the extent and operation of the doctrine of common employment, was brought by the appellant, a workman in the employ of Messrs. Higgs and Hill, Crown Works, South Lambeth, to recover damages for personal injuries which he sustained through the alleged negligence of the servants of the respondent, who were at the time of the accident engaged in carrying out a contract for the construction of fireproof flats and floors in a building which the appellant's employers were erecting. The respondents disputed the appellant's claim, on the ground that he was engaged with their servants in a common employment. At the trial the jury found a verdict for the appellant, with £50 damages, but that verdict was set aside and judgment entered for the respondents by the Queen's Bench Division, the late Mr. Justice Manisty, who took part in the judgment, remarking that the question as to the common employment was a very large and important one, and expressing a hope that it would be decided by the House of

ords. The decision of the Divisional Court was ubsequently affirmed, on appeal, by Lord Justice otton and Lord Justice Lopes, the majority of the ourt of Appeal, Lord Justice Fry dissenting. The se was argued some time ago, when judgment as reserved. Their Lordships gave judgment on uesday, reversing the decision of the Court of ppeal.—Lord Herschell, in now delivering idgment, said he thought it clear upon the facts hat the appellant was in no sense the servant of indsay and Co., the respondents, and it therefore ollowed that if it were essential to the defence of ommon employment that the person suing should imself be the servant of the master by whose rvant's negligence the injury had been caused, the efence could not be sustained in the present case. pon a review of the authorities he was unable to ntertain any doubt that that was essential. The uthorities were sufficient to establish the propo- tion that, unless the person sought to be rendered iable for the negligence of his servant could show hat the person so seeking to make him liable was imself in his service, the defence of common em- loyment was not open to him. He therefore hought that the judgment appealed from ought to e reversed, and the judgment entered for the laintiff restored.—Lords Watson and Morris con- urred.—The judgment of the Court of Appeal was herefore reversed, and the judgment for the laintiff (the appellant) restored, the respondents o pay the costs in the Courts below, and the costs ncurred by the appellant in respect of this House.

Apportionment of Paving Expenses.—Ex parte the New Land Development Association.—(Lords Court of Appeal, July 28; before Lord Justice Bowen and Lord Justice Kay).—This was an application for a rule nisi for a mandamus to the Greenwich magistrate to hear certain evidence in a proceeding before him. The Lewisham District Board of Works, having estimated the expenses of paving a new street called Adelaide-road, apportioned the amount among the owners of the houses and land abutting thereon. The board, having done the work, took summary proceedings before the magistrate to recover the amount apportioned against the New Land Development Association, the owners of houses abutting on the street. Upon the hearing of the summons the apportionment of the estimated expenses was put in, and the magistrate refused to hear evidence on the part of the association to show that the actual cost was less than the estimated cost, holding that the apportionment was conclusive for the purposes of the proceedings before him, and made an order for payment of the amount. The Divisional Court refused a rule nisi for a mandamus to compel the magistrate to hear the evidence. Mr. Horace Kent now moved by way of appeal for a rule nisi for a mandamus as above. He referred to sections 105 and 225 of the Metropolis Management Act, 1855, and contended that though the apportionment of the estimated expenses was conclusive if the proceedings were taken before the work was done, yet after the work had been done the actual cost could be inquired into. The magistrate, therefore, ought to have received the evidence. The Court granted a rule nisi for a mandamus.

Claim and Counter-claim—Architect and Client.—Frederick Rogers v. R. W. C. James.—(Kent Assizes, July 18.)—This was an action brought by the plaintiff, an architect residing at Bromley, to recover £123 6s. 9d., the balance of account for work done. The defence was that the real balance was only £13 18s. 10d. and there was also a counter-claim by defendant, a wine merchant of London, for £870 for negligence on the part of plaintiff. The plaintiff was instructed to prepare plans for the erection of a house at Sundridge-avenue, Bromley, and his plans were accepted. For the preparing of these and subsequent specifications, together for discharging other duties, he now sued for payment, the defence being that the house was defective owing to the negligence of the plaintiff. The plaintiff was told by the defendant that he wanted the house erected at a cost of £2,000, including his fees, and in consequence of the first plan costing £2,500, he prepared subsequent ones. The plaintiff was examined at some length in support of the case, and cross-examined with the view of proving the defendant's allegation. He said that he was given directions concerning each room in the house, before he prepared the first plan, and that, of course, created difficulties in preparing specifications to be carried out to a general estimate. He, however, exercised usual care in preparing the original plans, but notwithstanding he had to prepare subsequent ones. He admitted certain departures from the plans, but these did not affect the condition of the house to the extent the defendant alleged. Other evidence was called to prove that the plaintiff's charges were fair and reasonable. It was also proved that the foundation of the house, which was chiefly complained of, had been passed as being in accordance with the Bromley local board by-laws. On behalf of the defendant, several skilled witnesses gave evidence as to the amount of damages that in their opinion should be given for alleged negligence. The amount was put at £870, which included £400 as reduced rental, notwithstanding that defects in the erection of the building had been remedied. The jury found for the plaintiff for £58, and for the defendant on the counter-claim for £90. His Lordship entered judgment accordingly, and allowed costs in each case.

A Lady and Her Builder.—At the Watford County Court last week, before His Honour Judge Holl, the case of Eames *v.* Graveney was heard. The claim was for £15 5s. 6d., balance of a building contract and extras for building two cottages at Croxley-green. Plaintiff, a builder of Watford, entered into a contract with the defendant last October to build two cottages at Croxley-green for £350, to be paid by the defendant by instalments, all of which had become due. There was a balance due on the contract of £10, and in addition to that there was a charge of £3 5s. 6d. for extra work done in connection with sinking rainwater wells, and £2 for taking up ranges in the kitchen and substituting others of greater value. The defendant claimed that rainwater tanks were a set-off against gravel and sand which the plaintiff came upon in his excavations, and which he used in the building; and, further, she claimed £6 2s. 10d., the cost of completing work which should have been included in the contract. George Eames and Daniel Eames gave corroborative evidence, and William V. Syme, architect, said he had been over the property in question, and thought the work had been satisfactorily performed. For defendant, it was stated that the work was done in an unworkmanlike manner, and that there were 100 loads of gravel taken out, and the hole never properly filled up. Plaintiff refused to remedy the defects in the building. Mr. Frederick Stone, architect, London, estimated that £6 2s. 10d. would have to be spent to remedy imperfections which should never have existed under the contract.—The jury gave a verdict for plaintiff for £3 17s. 2d. paid into court and £3 2s. 10d., £3 being deducted for inferior workmanship.

WATER SUPPLY AND SANITARY MATTERS.

Uttoxeter Waterworks.—A ratepayers' meeting was held at Uttoxeter last Thursday to hear Mr. W. H. Radford, C.E., of Nottingham, explain a scheme for new waterworks in the town. The present waterworks are almost useless through lack of pressure and faulty design, and it is proposed to construct a new service reservoir with water mains throughout the town, and to take powers to acquire additional springs at Somershall Herbert, 3½ miles from the town. The cost of the engineering works would be £5,450. An Act of Parliament will be required. A resolution approving Mr. Radford's scheme was passed unanimously.

CHIPS.

The Dundalk harbour board, at their last meeting raised the salary of Mr. Peter Cahill, their engineer and surveyor, from £170 to £200 a year.

The premises of Messrs. Josolyne, Young, and Co., builders, in Tennis-court, Newcomen-street, Southwark, were destroyed by fire on Friday morning.

Another of the chief officers of the Metropolitan Fire Brigade has left the service. Superintendent Port, who is the only officer in the Brigade senior to Captain Shaw, has tendered his resignation to the Fire Brigade Committee of the County Council. Mr. Port joined on the 25th October, 1858, saw Mr. Braidwood killed three years afterwards, and was the only man left in the London Fire Brigade who was present at the fire in Tooley-street. Mr. Port was in charge, under Captain Shaw, of the headquarters at Southwark from February, 1879, until April, 1889. Two years ago he was appointed superintendent of the South London district.

On Saturday the chairman of the East Ardsley School Board laid the memorial stone of a new school, which is intended to meet the educational wants of the Fall. The school will have two elevations facing Stewart-lane and Mill-lane. The designs are by Mr. J. Lane-Fox, architect, Dewsbury, and the building will be of hard stone from the Holmfirth and Lightcliffe qarries.

A new Baptist chapel has been opened at Ilfracombe. It has sitting accommodation for about 500 persons, and, including the organ, has cost £2,500.

New board schools have just been erected in Plough-road, Battersea, from plans by Mr. Thos. J. Bailey, the architect to the London School Board. They accommodate 1,200 children in three departments, and have a central hall 65ft. by 38ft. The cost was £16,250, and the builder Mr. Charles Cox, of Hackney.

On the recommendation of their asylums committee, the Middlesex County Council have decided to erect an asylum for 200 imbeciles and idiots.

Our Office Table.

It had been decided as almost a foregone conclusion that Mr. Andrew Murray, A.R.I.B.A., for the past 17 years chief assistant to the last two City Architects, would be appointed as their successor, under the title of City Surveyor, and this anticipation has been justified by the event, for at the meeting yesterday (Thursday) afternoon of the City Court of Common Council, to determine upon the election of that official, it was announced that the other candidates had withdrawn their respective applications, and Mr. Murray was introduced to the Court as the "City Surveyor." The duties of the office have been rearranged by a committee since the death of Mr. A. M. Peebles, the late City Architect, and the salary, which was formerly £1,500 a year, has been reduced to £1,000. Mr. Murray was a pupil of the late Mr. J. B. Banning, a former City Architect, and has been for thirty-seven years in the service of the Corporation. After the death of Sir Horace Jones he designed and carried out for the Common Council the City of London Court in Guildhall-buildings, which was illustrated in our pages. By the present appointment, only too long deferred, he obtains an increase of salary of £200 a year.

The National Association of Master Builders of Great Britain held their half-yearly meeting at the Castle Hotel, Cambridge, on Tuesday afternoon, Mr. J. C. White, of Liverpool (president), in the chair. It was unanimously resolved "That it be referred to the council to consider the advisability of establishing in the building trade some system of national federation of employers and employed, somewhat on the lines of similar recent associations, which should also deal with the pensioning of old and disabled workmen."

We regret to hear of the death of Mr. John Russell Walker, A.R.I.B.A. and F.S.A.Scot., which took place at his house at Duddingston on Saturday, after a somewhat protracted illness. Mr. Walker, who was a native of Monimail, received his professional training in the office of Mr. Rhind, of Edinburgh, and was afterwards with Mr. James Cubitt, of London, till about 1876, when he commenced business for himself at North Hanover-street, Edinburgh. He joined the Institute of British Architects as an Associate in 1876. He was at one time an occasional contributor to the Building News, and of late years, as a Fellow of the Scottish Society of Antiquarians, he became well known in the archæological world by his papers on the holy wells, fonts, and recumbent monuments of Scotland, copiously illustrated from his own drawings. For many years he had been preparing materials for a complete monograph on the Pre-Reformation Churches of Fife and the Lothians. The part for Fife was issued some time ago, and was reviewed in our issue of March 20th last, when we gave a double-page photographic illustration of St. Monance Church from Mr. Walker's drawings. It is understood that the drawings for the second part, comprehending the Lothians, have been all made, so that it is hoped that the work will be completed by the issue of this section.

The death was announced in Birmingham on Thursday of Mr. Francis Willmot, the well-known surveyor, of Waterloo-street, which took place the previous night at his residence at Moseley. Mr. Willmot, who was fifty-eight years of age, was the son of the late Mr. George Willmot, who was surveyor of turnpike roads, and county surveyor of Warwickshire. He served his articles to Mr. William Fowler, of Waterloo-street, Birmingham. He afterwards commenced business on his own account, and in 1872 was joined in partnership by Mr. Charles Couchman, the firm of Couchman, Willmot, and Couchman becoming very widely known. Mr. Willmot assisted his father as county surveyor for many years, and on his death succeeded to the office. On the formation of the Warwickshire County Council the control of the roads passed from the justices to that body, and Mr. Francis Willmot and his son, Mr. John Willmot, were appointed joint-surveyors. From the passing of the Ecclesiastical Dilapidations Act, 1871, until about a year ago, Mr. Willmot held the position of diocesan surveyor for the Warwickshire portion of the diocese of Worcester, and throughout the whole nineteen years never had an appeal against

his assessments. In connection with his former firm and the more recent one of Willmot, Fowler, and Willmot, he acted as agent to the local estates of Earl Howe, the Earl of Bradford, Lord Norton, Lady Scott, Mr. J. K. Digby, and other large landowners. In his earlier years he was, the *Birmingham Post* remarks, a man of remarkable energy and industry, and it is said that he probably did a larger amount of surveying with his own hands than any other man in England. He did an immense amount of work in connection with Cannock Chase inclosures, and was frequently engaged by the London and North-Western and other railway companies. His integrity and high character were universally acknowledged in all professional relationships. He occupied a seat on the committee of the Birmingham General Hospital, and gave a great amount of time and labour in searching for a suitable site for the new hospital which is shortly to be erected. He was surveyor to the Balsall Heath Local Board from its formation until the end of 1872.

MR. WILLIAM HENRY COWLIN, builder, of Bristol, died suddenly on Sunday morning, at his residence, Combe Dale, Redland. The deceased, a short time ago, recovered from a serious illness, and was able to resume his occupation. He was formerly a decorator and painter, and when a youth he studied at the Fine Arts Academy, in Queen's-road, Bristol, where he won the national bronze medal for drawing at 14 years of age, and afterwards became one of the assistant masters of the School of Art. He subsequently joined his father, to whose business he succeeded in 1834. He was active in carrying out the details in connection with the competition for awards offered by the Bristol Master Builders' Association to apprentices who attended classes at the Merchant Venturers' School. Mr. Cowlin, besides being a member of the Executive of the National Association of Master Builders, was twice president of that body when their annual meetings were held in Bristol. He was for some years chairman of the local Master Builders' Association, and his addresses were invariably marked by ability. Among the members of the trade he was much esteemed for his genial disposition, and his readiness to further any movement which was for the advantage of employers and employed. He was one of the founders and directors of the Builders' Accident Assurance Company. He had restored churches in all parts of the kingdom, and among his local works are the restorations of the Temple Church and the Mayor's Chapel, and the building of the Dock Offices and Capital and Counties Bank. Of late years he was associated in business with two sons, and the firm at one time carried on business in Brunswick-square, on premises now occupied by the Liberal Reform Club, and after leaving there the business was removed to Stratton-street. Mr. Cowlin was 50 years of age. The funeral took place on Tuesday at Arno's Vale Cemetery, and was attended by the members of the City Master Builders' Association, and also by a large number of Freemasons.

DR. RAJENDRALALA MITRA, C.I.E., whose death is just announced, was a distinguished Oriental scholar. For upwards of 40 years Dr. Mitra has been one of the most industrious contributors to the pages of the *Journal* and *Proceedings* of the Asiatic Society of Bengal, the recognised medium of publication at Calcutta of all researches in the history, literature, archæology, and natural science of India and adjacent regions. Among Dr. Mitra's 114 papers published by the society may be mentioned the following:—"On Some Græco-Bactrian Relics from Rawul Pindi" (1862); "On Greek Art in India," and "On Leprosy in Ancient India" (1875); "On the Representation of Foreigners in the Ajanta Frescoes" (1878), Another branch of antiquarian research to which Dr. Mitra devoted much attention was the elucidation of inscriptions (whether on stone or copper) and of ancient coins. His more important works were:—"Buddha Gaya, the Hermitage of Sakya Muni," a monograph on that great temple; and "The Antiquities of Orissa," in two volumes, a work which was the outcome of an archæological mission to Bhuvanes' vara, whither Dr. Mitra was despatched by Government in 1868-69. Dr. Mitra was often consulted by the Government in regard to antiquarian matters, and he was created a Companion of the Indian Empire in 1878.

ON the third reading of the Public Health (London) Bill, an important and regrettable change was made in the measure on the motion of Viscount Cross. By a majority of 19 in a very thin House, it was decided, in spite of the protests of Earl Fortescue, to omit the clause requiring the assent of the Local Government Board for the dismissal of a sanitary inspector. The effect of this will be to give the owner of small property who obtains a seat on a metropolitan vestry or district board power to threaten the inspector of nuisances with dismissal should he make an objectionable report. We sincerely hope that the House of Commons will disagree with this amendment.

SEVERAL applications have been made to erect premises at the corner of East-street and Kennington-road and refused, Mr. Thomas Blashill, the superintending architect to the London County Council, having laid down a line which the promoters regarded as seriously damaging the value of adjoining properties for building purposes. Notice of appeal has been given, and after a delay of five months a Court of Appeal has been appointed to arbitrate under 53 and 54 Vic. London County Council Act, 1890, and has appointed to-day (Friday), at 12 o'clock, at Spring-gardens, for the hearing. This will be the first case tried at the Court of Appeal to be formed under the provisions of the Amending Building Act of last Session.

THE project for the erection of a Great Tower at Wembly is beginning to make visible progress. Mr. A. D. Stewart, to whom, in competition with Messrs. J. M. MacLaren and W. Dunn, was awarded the first premium of 500 guineas in the recent competition, has revised his design in association with Sir B. Baker. The form has been altered from an octagon to a four-sided figure, the height reduced from 1,200ft. to 1,000ft., and the architectural accessories pruned away. Excavations have been made for the foundations at the angles of a square, each side of which is 250ft. long. Each of these cavities will be filled with a monolithic block of cement concrete, 26ft. by 20ft. and 25ft. deep. Of the surrounding estate of 280 acres, one-half will be devoted to building purposes and the other portion is being laid out as a park by Mr. Milner.

MR. CHARLES L. EASTLAKE, F.R.I.B.A., the keeper of the National Gallery, writes to the daily press to condemn the proposal to build the monumental adjunct to Westminster Abbey on the Refectory site. He points out that this area is at present included in the open space at the rear of Ashburnham House, now the property of Westminster School, and that if a chapel were erected there, the light and ventilation of that house, now used as library, reading-room, and classrooms for the school, will be greatly impaired, and the next step would not improbably be a proposition to demolish that highly interesting 17th-century mansion.

THE National Museum of Scottish Antiquities, which has been removed from the Royal Institution at Edinburgh, in which it had been located since 1859, when it was made national property by the Society of Antiquaries of Scotland, has been for some time in process of arrangement, and will shorly be opened to the public, in the east wing of the National Portrait Gallery buildings. The fittings of the new museum have been provided by Parliamentary grant through H.M. Board of Works. The result of the great increase of space and new methods of arrangements is, says the *Scotsman*, that the series of Scottish antiquities is now seen to be a representative collection, national in character, and unsurpassed in scientific interest by any national collection in Europe. The museum is arranged in three divisions—the historic on the ground floor and the prehistoric on the first floor, both of these being Scottish; while the comparative collections, English, Irish, and foreign, are shown on the second floor. On the walls of the lower room, which is of the whole width of the apartment, are displayed portions of painted wooden ceilings, carved doors, and other fittings removed from dismantled Scottish houses. In the showcases in this hall are the smaller articles, so classified as to illustrate the military, ecclesiastical, social, and domestic aspects of ancient Scottish life and manners.

A GERMAN engineer has invented a process whereby the asphalte paving on roads subjected to heavy traffic is rendered almost wearproof. The new system consists of a thin base of concrete, over which a thin layer of asphalte is laid. In the asphalte, ribs of rod-iron are embedded diagonally, so that the asphalte is held in place. It cannot spread in warm weather, nor under the pressure of the heaviest traffic; and, moreover, streets equipped with this ribbed paving require no strengthening when tram-rails are laid down, as is the case with the old asphalte paving. The inventor also claims for the iron-ribbed asphalte that horses get a firmer grip in wet or frosty weather, which, in itself, is a very great advantage over the present. Taking into consideration the constant repairs which asphalte paving requires, this system would probably be found economical in the long run. By means of slips of cardboard inserted between the iron and the asphalte, the latter is prevented from adhering to its metal casing, from which it can be easily removed for repairs if necessary. The inventor of the process is Mr. Chr. Clausen, of Hamburg, and a portion of the roadway at the main entrance to the German Exhibition at West Brompton is laid with the new pavement.

A RECENT departure in pipe-making is the spiral-welded tube manufactured by an East Orange Company. These pipes are made by winding a ribbon of steel or iron spirally, and hammer-welding the overlapping edges. They are said to be the strongest pipes in proportion to weight ever made. As the greatest strength of rolled iron is in the direction of the grain, it is obvious that this plan has decided merits over the ordinary butt-welded tubes with the grain round the pipe. The helical weld acts as a strengthening band, and there is no line of weakness. For various purposes we should think the spiral-welded pipe offers advantages. A table appended to Mr. Burnham's paper on the subject in the *Proceedings* of the Engineers' Club of Philadelphia, shows that for a 6in. pipe of standard grade the proof strength per square inch is 866lb., and for heavy grade 1,106lb. For a 12in. pipe, the standard grade shows a proof-strength per square inch of 553lb., and for extra heavy grade of 893lb.

AT the last meeting of the Hanley Town Council, the General Purposes Committee recommended that, in consideration of his extra services rendered in connection with the erection of Victoria Hall and Quarter Sessions Court, and the alterations to the Town Hall, the borough surveyor (Mr. Joseph Lobley) be allowed two months' leave of absence, and that he be granted the sum of £100. In moving that the recommendation be confirmed, Alderman Bromley said that Mr. Lobley had undertaken a great deal of work for the corporation outside the strict duties of his office, and had thus saved the town a considerable sum in extras and architects' fees. He had well earned the gratuity of £100 which it was proposed to give him. Alderman Charlesworth, in supporting the motion, said the borough was to be congratulated upon having in Mr. Lobley not only an efficient engineer, but a man of architectural skill. His extra services as an architect, not only in connection with the Town Hall, Victoria Hall, and Sessions Court, but at the Shambles and other corporation property, had saved the town, it was estimated, at least £500 or £600. An amendment to the effect that the leave of absence be granted, but not the gratuity, was rejected by 12 votes to 10, and the recommendation of the committee was then confirmed. We understand that Mr. Lobley, who has not previously been absent from his duties for more than a week at a time during more than 20 years' service, sails for New York in the *Etruria* on August 22nd. He visits America mainly with the object of inquiring into the methods by, and cost at, which towns in the States are lighted by electricity, the Hanley Corporation being committed to an expenditure within the next few years of some £30,000 to £40,000 on electric lighting.

Architectural Association, 9, Conduit-street, W.—Members wishing any alteration to be made in their addresses in the Brown Book are requested to communicate with Mr. H. W. Pratt, 6, Duke-street, Adelphi, before August 15th.

ERNEST S. GALE, F. T. W. GOLDSMITH } Hon. Secs.

The Ossett town council have adopted plans prepared by Mr. John Hanson for the extension of its eastern outfall sewage works, and resolved to apply to the Local Government Board for sanction to a loan of £700 for the purpose.


Old Hall

B.N.D.C. A Tennis Pavilion : by Eighteen 91.

PLACED · FIRST

Scale

Urinals
Lavatory
W.C.
Materials
Gentlemens Dress 10×8
Shelter 23×10 ft
low wall
Staircase
Ground Plan

Front Elevation

Sketch

W.C.
Lavatory
Ladies retiring
Shelter Gallery
Staircase
First Floor Plan

Z.T.C.

End Elevation

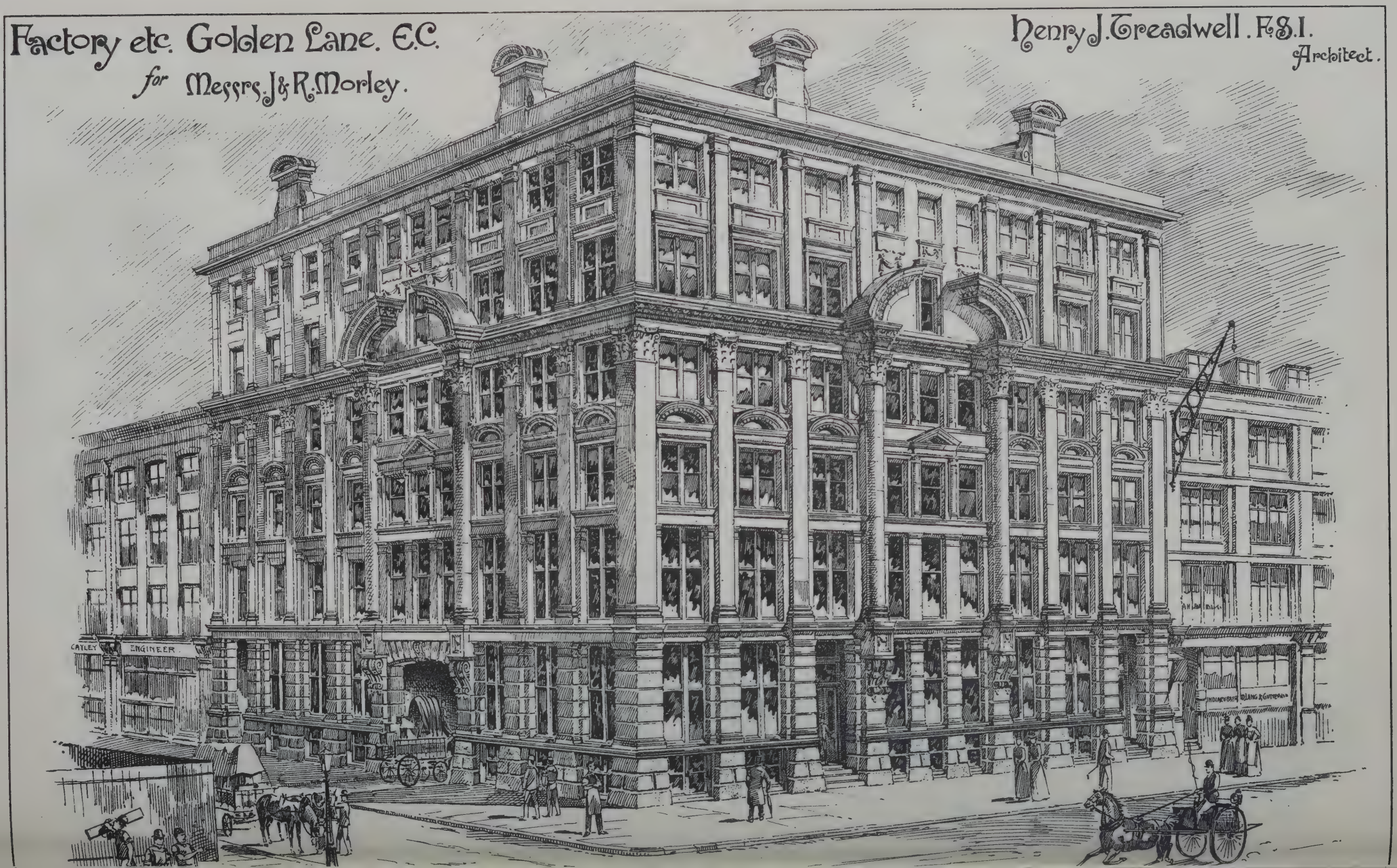
Section

Thatch
Scale
Section
shutters
oak pins. 1/2 Projection
10×10
10×8
-Detail-

Factory etc. Golden Lane. E.C.

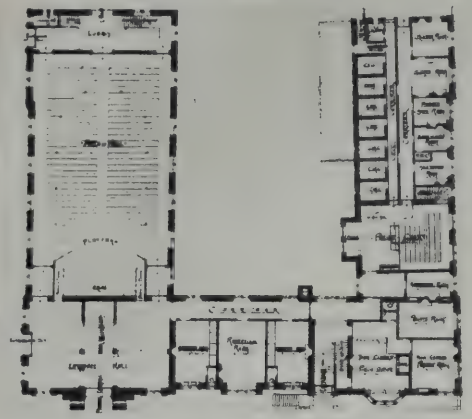
for Messrs. J. & R. Morley.

Henry J. Treadwell. F.S.I.
Architect.

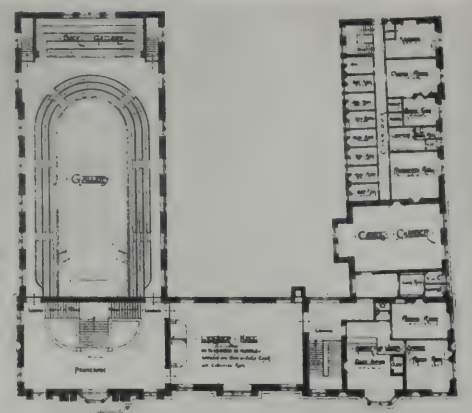


New Municipal Buildings Burgh of Coatbridge N·B·

A. Mc. G. Mitchell Archt
Coatbridge



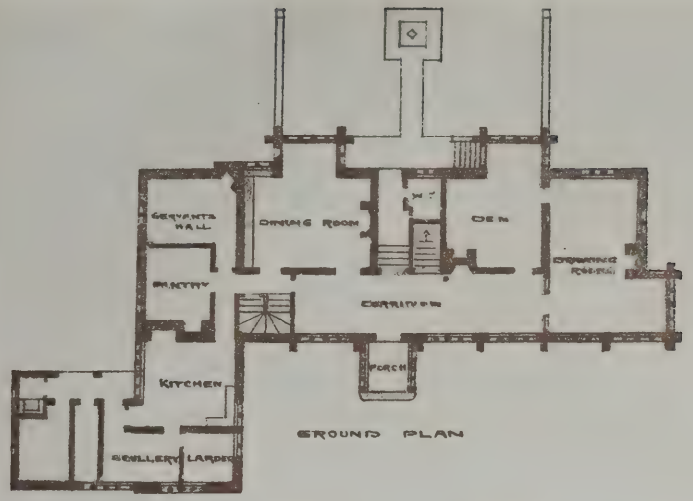
Ground Floor Plan.



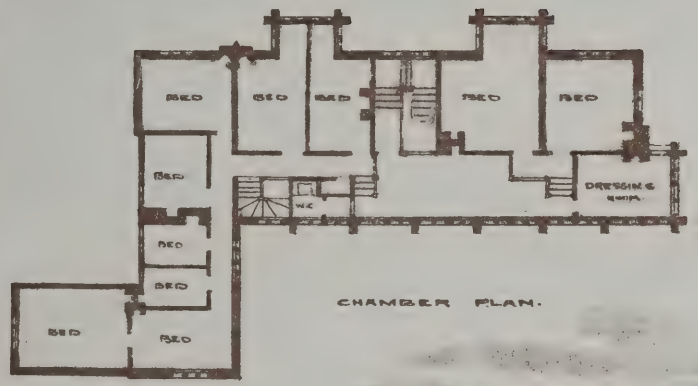
Plan of Upper Floor.



Photo-Lithographed & Printed by [illegible] Aberdeen & London.



GROUND PLAN



CHAMBER PLAN.





- WHITMEAD -
TILFORD - SURREY -
FOR
SIR HENRY CUNNINGHAM
- K.C.I.E -

EDWIN L. LUTYENS ARCHT
FEBY 1891.

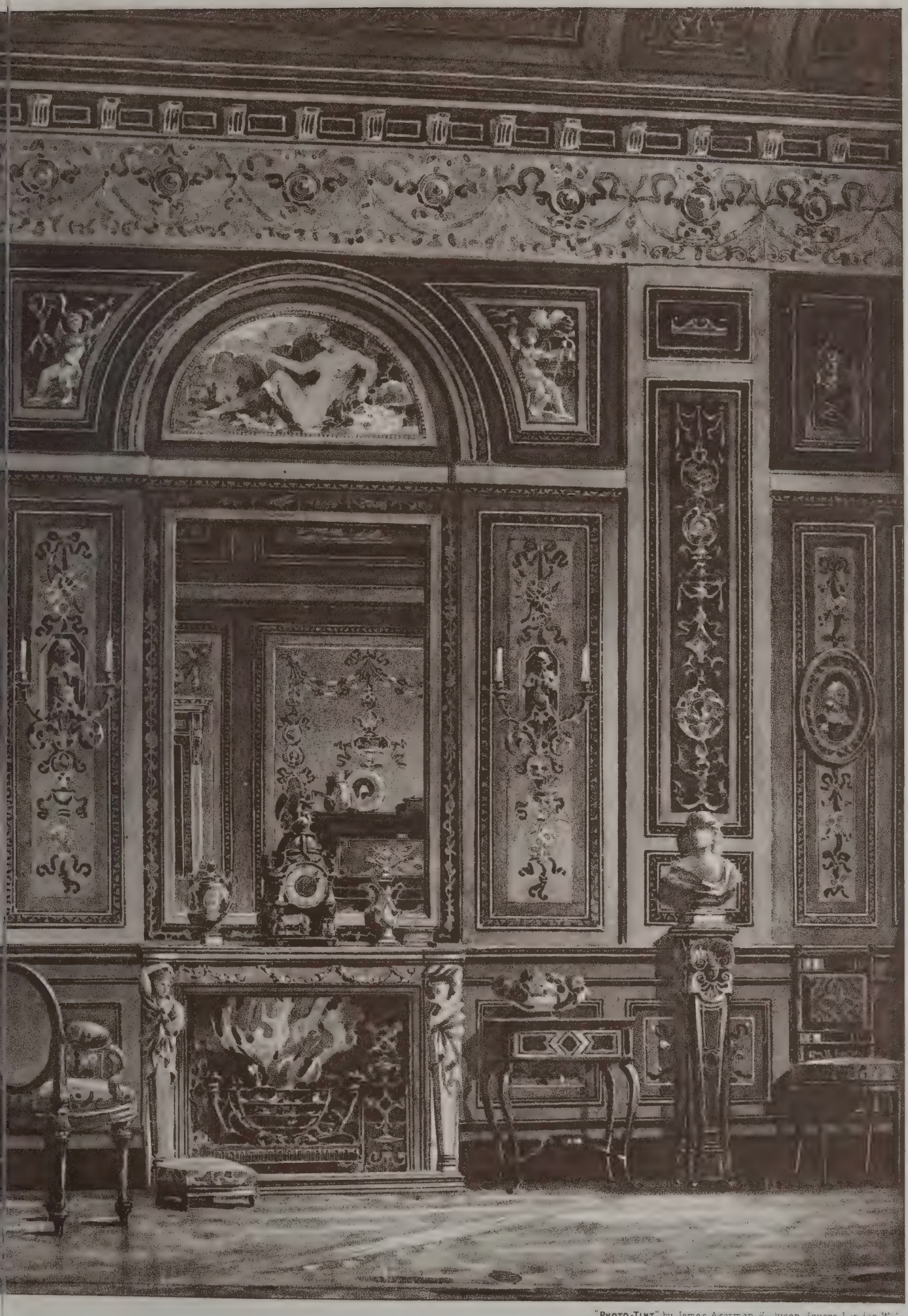
'PHOTO TINT' by James Akerman, 6, Queen Square, London, W.C.



Photo Lithographed & Printed by James Akerman, 6, Queen Square, W C



LOUIS-SEIZE-DECORA



"PHOTO-TINT," by James Akerman, 5, Queen Square, London, W.C.

BY WALTER HENSMAN.

THE BUILDING NEWS
AND ENGINEERING JOURNAL.
VOL. LXI.—No. 1909.

FRIDAY, AUGUST 7, 1891.

THE SOUTH KENSINGTON MUSEUM COMPETITION.

THE last step towards the completion of the long-neglected buildings of the South Kensington Museum has been taken, and the designs for the work which is to mask the present heterogeneous and unsightly collection of sheds, and to present façades worthy of the importance of a national museum towards Cromwell-road and Exhibition-road, have been on view at the Foreign Office. The existing Gallery for Fabrics, now flanked by a blank wall of brick, and the buildings used as the Library and Gallery of Antique Casts, which project therefrom at right angles, and, eastwards of the latter, the Architectural Courts, form the nucleus of the new buildings which are to face Cromwell-road. Out of nine architects invited to compete for the work eight accepted, of whom we have already published the names, and Mr. Alfred Waterhouse, R.A., was appointed assessor in February last. The site presented a few difficulties. One of these was how to unite the new with the old galleries, to make a central entrance from Cromwell-road worthy of the institution, and side entrances in Exhibition-road, having means of easy access to and communication with the existing galleries and their levels. The acute angle between the two roads had to be considered. The style suggested is one that will harmonise with the present structures of the Department, with the Science School on the west side, and with the Lord President's and Italian Courts internally, as well as with the Natural History Museum in Cromwell-road. The authors have nearly all adopted a recessed centre with projecting wings, a very necessary condition, both for giving space and dignity to the entrance and variety of façade by the breaking up of the long line of frontage. Reviewing the designs, we have seldom seen a more carefully prepared set, many of them marked by great artistic ability, both in the planning of the departments and in the exterior treatment of the façades. Both the conditions kept in view by the committee—namely, that the elevation should harmonise with the adjacent buildings, and the interior be suitable to the requirements of the Department—appear to have been complied with in the selected design by Mr. Aston Webb.

The value and importance of a well-broken frontage towards Cromwell-road has been considered in nearly every design, the main façade showing a recessed centre with end wings, in several plans a quadrantal arrangement having been adopted instead of a square recess. The selected design, "S.K.M.," by Mr. Aston Webb, of which we give a perspective view and the plans of ground and first floors, is artistically arranged in the plan. The main departments are well disposed; the Oriental court, 144ft. by 98ft., with its surrounding galleries and corner pavilions, forms the western wing, having its main length towards Exhibition-road, and the students' exhibition court, 80ft. by 75ft., with an office block in front, forms a corresponding eastern wing towards Cromwell-road; and between these two blocks is a recessed portion comprising the centre entrance-hall, 170ft. by 85ft., a large European court, with lateral courts and galleries devoted to the same class of exhibits, one of these 124ft. by 50ft., and the other 107ft. by 50ft. Both the great European court in the centre and the Oriental court at the western end have their axes at right angles to Cromwell-road, and between them are the European courts, which run longitudinally on each side of the central hall; these, as will be seen, are arranged *en suite* by open colonnades. The courts are top-lighted. The western Oriental court is divided into three central compartments by four columns (see plan) over which are circular domical lanterns, the sides being roofed by narrow-span roofs. The intercommunication between the existing permanent galleries, and between the present Oriental gallery and the Oriental court, has been well managed. The galleries and angle pavilions are skilfully planned, and will form handsome apartments. The clever pen-and-ink perspective of entrance hall, showing a double arcade of circular moulded arches, and the triforium of traceried arches over, surmounted by a roof of circular ribs, illustrates at its best the style selected, which Mr. Aston Webb has carried out in the new Birmingham Law Courts. It combines many of the beauties and artistic capabilities of the Romanesque with the grace and playfulness of the Spanish Renaissance. Repose and dignity mark the well-balanced front towards the Cromwell-road. The square towers, or pavilions, at the angles of the blocks are massive and bold, each surmounted with an octagon upper story and a dome of rather flat Oriental form, which in execution will probably bear a little raising. These square pavilions group quietly and pleasingly with the massive plain-looking square tower, which rises over the main entrance, accentuated at the angles by bold octangular piers, but plain beneath, and only pierced just below a rich corbelling or cornice, above which is a succession of graceful octagon stories, which resemble a little the Spanish tower at Seville. There is much that is elegant and reposeful in this central feature of the main elevation. The square mullioned windows of the lower story of galleries and the round arched windows above of three lights, the rich corbel table or cornice, make a very agreeable *ensemble*. These gallery windows will give plenty of light—a very desirable point in a museum—and they will harmonise with those of the Natural History Museum on the other side of Exhibition-road. A large scale detail of the elevation exhibits some clever and artistic draughtsmanship.

Under the motto "Prince Albert," we have a very poetically-conceived group of buildings, reminding us of some ancient palace. Cleverly-drawn perspectives in Indian ink—one of the exterior and the other of the staircase hall—appear to conjure up in the mind the ruins of some stately edifice in the Venetian Lagoons; the dark and massive features appear to rise out of a wet, shiny pavement or lake. The interior view of staircase looks almost like that of a cathedral in its lofty vault and deepened shadows. These drawings are certainly full of artistic power, though sketchy. There is a decidedly Spanish feeling in the design of the main front. Its long, level line of parapet is broken by two octagonal cupolas and the quadrant recess of centre, and by the square projecting towers which terminate the wings of the lower projecting gallery. This lower story, with its tall, stilted order on pedestals, and the upper story of Ionic pilasters, resembles the façade of the Palace at Granada; the orders have a weak, attenuated look, while the sculptured figures in relief between the lower and entresol range of windows have no structural base, and look out of scale. The plan shows a clever arrangement of square courts and galleries, with a central gallery which forms the main façade above, broken by octagonal halls and cupolas. Cross galleries intersect the main gallery at these points, which, together with the entrance hall and Exhibition-road gallery, inclose three rectangular courts. The one-story gallery facing Cromwell-road surrounds an oblong court. The centre is set back by quadrants forming an open loggia. The angle at the corner of main façades is square, and a very lofty tower of not very elegant profile rises above the staircase at end of central gallery. A large-scale coloured drawing of one of the main cupolas, showing the open iron cone, is exhibited. The grouping of towers and low south gallery is artistic; the courts and galleries are top-lighted. The author of this design is Mr. John Belcher.

We pass from this very elaborate example of Spanish Renaissance to a design of extreme Classic severity, "English Tradition," a Greek Classic treatment, by Mr. Mervyn Macartney. The author has clearly thought that a museum should be top-lighted, and that ample wall-space should be given to the courts and galleries of a museum; hence he has reduced fenestration to a minimum, as being inconsistent. Upon this principle, Mr. Macartney's plan is intelligible. He has a central circular-domed court as an index hall forming the middle block of the Cromwell-road front. A longitudinal gallery connects it right and left with the wings. The N.W., S.W. courts are surrounded by arcades and outer galleries, and these form a very symmetrical arrangement. The second-floor plan shows a suite of picture galleries surrounding the courts. The elevation towards Cromwell-road consists of three massive blocks, each with projecting angle blocks *in antis*, with pediments; a lofty attic crowns each of the main blocks. The courts are top-lighted by a series of span roofs of glass, and a tower rises in the centre of the façade towards Exhibition-road. The effect of such a building externally would be rather heavy and depressing in a neighbourhood surrounded by buildings of ornate Romanesque and elaborate Renaissance features.

"ΤΕΧΝΗ ΤΥΧΗΝ ΕΣΤΕΡΞΕ ΚΑΙΤΥΧΗ ΤΕΧΝΗΝ," we believe by Mr. W. Young, is a very florid design in Spanish Renaissance of two orders, the lower order much stilted. The author has imparted to his detail and ornamentation something of the Early Plateresque style of Spain, which derived much from Moorish fancy. A pencil elevation of the façade shows some exuberant detail in brick and terracotta. The plan has a recessed centre and well-broken wings, with corner pavilions projecting, two western square courts, 102ft. across each way, and a central entrance in Cromwell-road, leading to a centre gallery, which is lighted by cloister courts. The acute angle of the site is followed on the façades, and a circular recess with fountain is shown at the corner. The view of entrance hall shows some good detail of arches and frieze in terracotta, open arcading over, and a flat coffered ceiling.

"Chi si Contenta Gode," we believe by Mr. T. G. Jackson, is a free Renaissance treatment, with a corner tower of rather Spanish character, a central tower with dome over the centre block, which is recessed, and corner pavilions, which relieve the main façade from monotony. The plan conforms to the acute angle. There are three courts at the Exhibition-road end, with galleries round. A wide, recessed centre, with quadrantal-shaped galleries, emphasise the central block, and a tower entrance leads to a central court, wide and oblong, between the old science library and the antique casts gallery. A sculptured frieze runs round the centre block, and there is a loggia of open arches. The tower is octagonal above, and is surmounted by a cupola. A perspective of the central court shows circular iron ribs and open-work spandrels, carried by columns and arches, with side lean-to aisles. The roofs of courts are mainly of iron. The exterior view looks rather hard; but the details of one of

the towers and bays indicate careful study in the materials—red brick and terracotta.

A very beautifully drawn ink perspective illustrates "Ars Longa Tempus Breve," by Mr. Emerson, in which design of red brick and terracotta Spanish features and details have been cleverly combined. The centre is recessed, and the wings are emphasised by projections flanked by circular stair turrets at the angles, shown by a half-inch scale elevation. Detached Corinthian columns of terracotta stand in couples upon a basement of the same material in courses, between which coupled columns are windows with semicircular heads on the first floor. At the corner the acute angle is cleverly concealed by an octagon-ended stair projection, with raking lines of ornament, which is made a feature. A deep frieze of figures in relief is introduced below the cornice. The elevation towards Cromwell-road is dignified and well broken up. The entrance has a *porte cochère*, and there is a screen connecting the wings in front of the recessed centre. In plan the blocks conform to the acute angle of boundary, the inequalities being thrown into areas for light. There are north-west and west courts with galleries, a central octagonal court, domed top and side-lighted by areas between the old galleries, and an east court for students' competition works. Over the west entrance in Exhibition-road is a tower. The interior perspective of west court has a domical roof of glass and iron, resting on four semi-domes; the latter spring from beams thrown across the angles of court; but the arrangement has too much the *tour de force* effect to be pleasing, and the angles in soffit of ceiling filled with circular panels are awkward. Two tiers of arcades on coupled columns surround the sides of court. One objection to the plan is the small galleries created by dividing by transverse walls the main areas round the courts. The entrance court and central octagon and the recessed archway over the balcony are handsome features.

"Verona" (Messrs. Deane and Sons) is another well-balanced arrangement of blocks, a wide centre vestibule recessed with quadrant ends flanked by imposing towers, and two wings with corner turrets. The three blocks have domical roofs; the angle between the two façades has been ingeniously disguised by a lofty tower, which forms a staircase. A large octagonal Oriental court, with two tiers of arcades with galleries on both sides, is a feature in this plan, and is made rather ingeniously to connect with the galleries on either side by a circular vestibule, leaving irregular areas for light and air. The central court and staircase is roofed by a square domical lantern admitting light, supported on deep coves, and the octagonal Oriental court has iron ribs and lantern, forming a dome-shaped roof over the centre. There is much dignity and repose in the grouping of the three pavilion-shaped blocks, and in the towers and details, which are in the Italian Renaissance style.

An arrow in shield (Mr. T. E. Collcutt) is another design of a less particular phase of Renaissance, and considerably tinged by Oriental features. The principal feature is a prodigious dome which crowns the central hall, surrounded by two orders of coupled columns and sub-arches and an arcade above. The dome resembles that of the Pantheon, and has an "eye" for light at the crown, but its proportions are crushing. Corner towers support the centre. The plan is square at the south-west angle, and has two courts and galleries, and there are corner pavilions to the wings. The author has studied to harmonise the building with the present surroundings, and there is some dignity in the treatment of the three blocks. The students' court and galleries are well arranged for separate exhibitions of their works. The author estimates his design at from £370,000 to £390,000. The cost of the design which was finally approved on Thursday is estimated at from £300,000 to £400,000. Our present illustration will be followed by those of the other designs.

UTILITARIAN ARCHITECTURE.

MODERN experiments are becoming so numerous and pressing, that the problem is not to follow a style or a precedent, but how to build up to date—how to embody all that is absolutely needed—all the improvements of the engineer, the inventor, and manufacturer of new appliances. The old academical or classical formulæ, which set before the architect canons and rules, can only be accepted in the case of monumental buildings, in which category we may include churches, structures commemorating actions or individuals, and those public edifices which are more decorative and monumental than designed for utilitarian purposes. Such a division is becoming more apparent every day; we seem to be approaching an epoch in the history of architecture when a line between the decorative and utilitarian styles must be drawn; when a phase of what might be called engineering-architecture will be developed. Civil engineering as a special branch of construction caused a breach in architecture early in the present century; but the division was a broad one. A new sort of structures was called for, and a class of specialists arose who had made iron construction a particular study. The architect's domain was encroached upon slightly. Both branches of the constructive art have since gone on extending their boundaries; the engineer's profession now embraces a number of distinct classes of practice, as those of the hydraulic, the railway, the electrical, and the sanitary engineer. The architectural profession comprises also those who follow certain special branches; but the distinction to which we now refer is a further subdivision created by the natural hostility between the artistic and the utilitarian, which we see in contrasting our great public edifices with those erected for commercial, hygienic, and charitable purposes. Take the first; the commercial spirit is defiantly expressed in the very elevation of our large street establishment; what is left for the architect to do is simply to arrange the proportion, to adjust the width of piers between the huge sheets of plate-glass windows, and to decorate the façade. All within is sheer engineering or building work: floors and partitions are composed of a framework of iron stanchions, columns, and girders; the side walls are plain structures of brick, and the only pretence to architecture is the façade, which is a mere front screen. We cannot dignify by the name of architecture the clothing or decoration, such as it is, of the internal walls. Absolute requirements and utility have governed their construction and position; the whole structure is one of floors, lifts, and staircases, for which the skill of the engineer or builder is required. Even the fittings, the heating, the gasfittings, the "wiring" for the electric light and bells, and the ventilating arrangements come within the engineer's province. Interiors of this class are no longer proportioned by the rules of Vitruvius or Palladio; the rooms are not designed after certain geometrical or harmonic proportions, but made to suit the requirements of business. Instead of the studies of the artist, calculations and tests of the strength of columns and girders, modes of constructing fireproof floors, and of arranging apparatus are required. It would be of little use to spend much time in designing cornices, panels, and other interior details in buildings which are destined to be frequently altered or reconstructed to meet the exigencies of trade. In a like manner where is the scope for architectural taste or invention in a technical school or a workhouse, a hospital, or lodging-houses built in flats? A very different kind of training and experience is needed by the architect in designing and carrying out these structures to that necessary in the design, say, of a church or a mansion. In the first case architectural design is confined to the mere shell or façade; it is not the motive but a merely subsidiary function in arranging a façade, of clothing the structure; it is completely subordinate to the utilitarian purpose. In the latter the art is the primary motive of the design, and arranges and governs the whole building. It gives, so to speak, shape to the external masses: it groups them and models the whole design. No one but an architect can realise the difference between the design of a monument, or town hall, and the design, say, of a set of baths and washhouses or a market. Artistic purpose governs in the one; the architect has to conceive a plan, a proportion, an outline of mass and feature, a scheme of decoration and detail; but in the latter, the engineering structure, the utilitarian requirements are of the first importance. The danger is that these requirements, so exacting and so technical, are prejudicial to the artist by inducing him to relegate them to engineers and specialists. Thus the iron roofing of columns, and galleries of a market are supplied by firms who undertake the design and details, who have made a particular study of roofs and ventilating arrangements. The architect hands over the structural matters to the firm—is it not more true to say the structure is handed over to them?—for which they prepare a scheme and write the specifications which are accepted. The design is worked "down" to these provisions—that is, the architect receives the engineer's scheme, and then completes his designs or elevations. Another example of the same overruling of the utilitarian is to be noticed in schemes of ventilation applied to public halls, courts, chambers, and law courts. The section of the roofs must be made so as to permit of the introduction of air trunks and shafts; must be the joint work of the architect and ventilating manufacturer. They must consult together, or the architect must give *carte blanche* to the latter, or contrariwise the manufacturer must do the best he can to introduce his apparatus. Heating by hot water and steam, or air, the patented forms of boilers and coils and radiators, inlets, &c., have an appreciable effect on the design of the architect; he cannot do as he likes, but must consult those who have made heating a special[illegible]. So with the electric lighting require[illegible] plans and specifications must be prepared to meet them, and provisions made.

All these matters are, we say, making the architect's labour more technical and laborious—that is, if he conscientiously tries to keep himself abreast of them; or, on the other hand, these requirements are making it more easy for specialists to begin to set up special branches of utilitarian architecture. Directly a class of building begins to partake more of an engineering character than the architectural, there is an opportunity at once given to the specialist to make it a business. Look at the horticultural builder, the farm architect, the washhouse and laundry engineer: they have already made these branches of building specialities. It is for the profession to decide for themselves if this sort of subdivision of their art is to go on; if they are content to sit still and see certain developments of practical architecture taken up by individuals who know only the utilitarian requirements, but are very ignorant of architecture—look, for instance, at many of our markets and farm buildings.

ourse, the public want certain require-ents carried out with efficiency and scientific rrectness, and if the architect cannot ndertake to do so, he must not be surprised the outside specialist is called in. In these mmercial and practical days utilitarian id technical requirements are constantly croaching on the purely architectural ovince of the practitioner, and unless he is epared to come to terms of agreement with ie invading forces of the engineer and ecialist, he must by degrees surrender his sition and even the citadel of his influence them. There can be now no longer any spect of his facing the foes and opposing eir advance. Terms of compromise can yet made.

Sanitary, structural, and physical science, cluding the various forms of specialism hich threaten to break up and disintegrate e practice of architecture in the future, are ithin the reach of the practitioner if he will ly take advantage of them. If he refuses, hers are willing and ready to apply them special wants, as engineers and sanitary perts who now prepare designs for special uildings like baths and wash-houses, farm uildings, factories, and the like. If the chitect is content to allow this constant croachment upon his domains, he will find r-and-by a further division of architecture s taken place, and specialists will appear ady to undertake all buildings in which ecial scientific knowledge and experience e required. This must necessarily be the sult. Two causes are helping to create this vision: the apathy of the profession, in not aking themselves masters of particular re-irements, and the demand of the public to tain the latest and most approved buildings id appliances they can. The true artist's skill to give form to various materials that ve forced themselves upon attention, and suggest methods of arrangement to pre-nt unsightly applications. The canons of t applied to the older materials of build-gs, such as brick, stone, and marble, have t to be extended to concrete and iron. ew wants of large communities, like baths, ash-houses, and polytechnics, still call gently for some art in their construction. he public first look for the improved aterial and the new agency—they will have in spite of art; but after it comes the sire for a more artistic treatment. Utility st, then art, has been the natural order of l architectural construction; the pity is at the artist has not consulted this order, it has allowed the expert to remain master the former position—hence the divorce at has taken place.

NONCONFORMIST CHURCH BUILDING.*

By James Cubitt.

INTRODUCTION.

N the Nonconformist church-building of to-day it is easy to note two very fferent ideals. They may be called, for dis-nction, the "congregational" ideal and the ecclesiastical" ideal. There is something be said for each of them: and yet neither, itself, is quite perfect or satisfying.

The "congregational" ideal concerns elf most with practical and material fit-ss. It demands that its buildings shall adapted "for preaching, and for worship the congregation." It asks that every-ne shall see and hear the preacher, without nscious effort. It insists that the sermon shall be heard without strain, either of the rs of the auditory, or of the voice of the inister." It desires, too, that "the speaker all be in vital contact with his hearers. oquence, it has been said, is in the udience: the preacher's inspiration is not his theme alone, but in the manifest sym-thy with it—the kindling eyes and inter-ested countenances of the people. If, there-fore, he is separated from them by any such space as prevents his easily catching these, his inspiration must be entirely subjective, and necessarily partial." And, the prayers being usually extemporaneous and not liturgical, "the necessity for their being easily heard is greater, even, than in the case of the preaching. Thus, except during singing, the congregation throughout are entirely dependent on hearing the words of the minister." And the singing itself is not choral, but congregational. It is only led by the choir. There is no part of it in which the congregation does not join. The choir "should, therefore, be in the congre-gation and of it." Such, as stated by a high authority, are the conditions of the case on the "congregational" ideal; and from these conditions, according to that ideal, the whole scheme and design of a Nonconformist church ought to spring.

Those Nonconformists who, on the other hand, are attracted by the "ecclesiastical" ideal, do not deny the importance of these practical requirements. They wish them to be fulfilled; but—to be fulfilled in a building as much like an Anglican church as possible. They look for a high standard in the accessories of public worship—in architec-tecture and music and the arts—and they find it there. And they point out that these accessories, as daily experience shows, have a real and powerful influence on the mind. To gain this influence, they wish to copy the buildings which produce it; and hence arise many failures. It is so easy to imitate the form, and yet to lose the spirit. And at best the imitation can hardly be close. The form and arrangement of most ancient churches are very unsuitable to Nonconformist purposes. The long nave arcades, with their piers, are, for these purposes, greatly in the way. Yet to retain them and thin down the columns—as Nonconformist attempts to realise the "ecclesiastical" ideal are so fond of doing—is to lose their effect of per-manence and repose, without losing much of their physical obstructiveness. So it is with other points in the Anglican church plan; and the result of following it is either to keep most of its inconveniences, or to lose most of its characteristic expression.

Neither the "congregational" ideal nor the "ecclesiastical" one leads to success if it is followed too exclusively. Each has something to learn from the other. Con-venience and material utility are indis-pensable, no doubt. But there is no advance to be made by seeking them solely, and by being blind to everything else. To do this is to be left behind as the world moves on. Artistic knowledge and cultured tastes are not now confined to what are sometimes called the upper classes. Year by year they become commoner and commoner; if they did not, public education would stand con-demned by its own results. To build with-out reference to them is to get out of touch with our contemporaries. A generation ago it may, in one sense, have answered to put up a structure with the proportions of a barn—to fit it up with three galleries and a plat-form, and then, by adding some tracery and carving, and perhaps a too-ambitious spire, "to hide with ornament the want of art." Those days are over; it is necessary now to begin further back, and to think about the form and proportions of the structure itself.

So much for the artistic side of the subject. But, turning again to its practical one, the "congregational" ideal is undoubtedly right in the main conditions it lays down. Non-conformist churches must, beyond all ques-tion, be built to see and hear in. The time may come for most of them, as it has already come for some, when they will not stand empty from Sunday to Sunday. Already we hear of a future in which "church work will have to be as varied as human nature"; in which there will be much other teaching besides that of the sermon, and many other services besides those of prayers and hymns. All this implies more—not less—regard to material utility; and the problem is, there-fore, to get this, and yet to get more impressiveness, more elevation of character, along with it. It remains, in short, to reconcile the "congregational" ideal with the "ecclesiastical" one, and to show that each has been wise in its aim, if neither as yet has been quite successful in its means.

The successive steps which are usually necessary in the erection of a Nonconformist church may be arranged under the following heads:—

I. Choice of a Site.
II. Giving Instructions for Designs.
III. Selection of a Design.
IV. Appointment of a Builder, and Execution of the Works.

CHAPTER I.—CHOICE OF A SITE.

Very much depends on the choice of a site. Some sites are dear at a gift. Such are commonly those which lie far below the adjoining street, so that a vast quantity of brickwork is wasted, or nearly wasted, before the floor-level is reached. Schools, perhaps, are put under the church; but gloomy and unhealthy schools they are in most cases. Then there are sites which slope steeply upwards from the street. These, in addition to a waste of brickwork, involve the inconvenience of many steps for access to the building, unless the back of it is partly underground. Then there are sites with bad foundations, where the walls have to go, perhaps, half as far below ground as above. There are sites in which it is neces-sary to under-pin adjacent buildings, or even to keep up adjacent ground by retain-ing walls; and sites in which it is hard to get light and air enough, or in which there would be a risk of law-suits through shutting out light and air from neighbouring buildings. There are unhealthy sites, sodden with sewage or stable drainage, or filled up with the refuse of dustbins; and there are sites, again, so placed that they can hardly be drained. No doubt faultless sites are rare, like other faultless things, and people who want to build in a particular district must build where they can. There are ways of dealing with most of the difficulties named; but these ways cost money, and a good site is the first condition for an economical building.

It does not follow, however, that a site ought to be perfectly level in surface, or per-fectly regular in shape. Irregularly-shaped sites often produce the mostly artistic, and not rarely the most conveniently-planned, buildings. A slight fall from front to back of the ground, or from side to side, may be turned to account in the arrangement of the church. Amongst the most difficult sites to deal with for congregational purposes are the long and narrow ones, particularly if a space has to be taken off the sides of the site to allow of light. A long, narrow site leads, in this case, to a long, narrow building, and this is not the sort of building best suited to Nonconformist worship.

Corner sites are good, and would be better if those who purchase them did not almost invariably want to fill up the corner with a tower and spire. Much may often be gained both in internal and external effect by put-ting the side of the church, rather than its gable end, next the main road. More light is thus obtained within, and more picturesque-ness without. Aspect, indeed, is a matter which deserves greater attention than it usually gets. When the principal façade faces the sunless north, it is hard to keep it from looking gloomy and repellent. Any other aspect is better, and especially those which are partly or wholly south or west.

The necessary size for a site depends, of course, not only on the number of people which the church is intended to seat, but on the question whether they are all to be seated

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in the ground floor area, or whether many of them are to be put in galleries. And if a number of other buildings besides the church are to be put on the site—such as Sunday-schools, classrooms, lecture-halls, &c.—the required area will probably have to be doubled. A plot 120ft. square will contain a church for 800 or more, together with schools and classrooms for 500, a caretaker's house and other buildings, arranged without crowding. But where land is valuable, it is often necessary to get the same accommodation on a much smaller space, though if room can be afforded, it is more satisfactory to keep the various buildings still farther from each other and from the street.

PRICES.—XIII.*

[It will have to be borne in mind that the prices given do not include any provision for an increase in the cost of labour, should the men now on strike obtain the 10d. per hour; and contracts taken pending the strike should be entered into with caution, and ought to have a clause allowing an increase if the 10d. is paid, though it scarcely seems probable that it will be.]

CITY OF LONDON:—Commissioners of Sewers have adopted the following charges for permission to use hoardings for the purpose of advertising:—

For *first-class* streets, and the return frontages thereto:—

		£	s.	d.
For the first six months, per foot super. per month		0	0	4
Afterwards	ditto	0	0	6
All other streets:—				
For the first six months	ditto	0	0	2
Afterwards	ditto	0	0	3

The following is a list of *first-class* streets:—Adelaide-place, Aldgate, Aldersgate-street, Aldgate High-street, Barbican, Beech-street, Bishopsgate-street (Within and Without), Blackfriars Bridge Approach, Blomfield-street, Cannon-street, Chancery-lane, Charterhouse-street, Cheapside, Cornhill, Eastcheap, Farringdon-street, Fenchurch-street, Finsbury-pavement, Fleet-street, Fore-street, Gresham-street, Gracechurch-street, Great Tower-street, Holborn, Houndsditch, King William-street, King-street, Cheapside, Leadenhall-street, Liverpool-street, London Wall, Long-lane, Lombard-street, Lothbury, Lower Thames-street, Ludgate-hill, Ludgate-circus, Mansion House-street, Moorgate-street, New Bridge-street, New Broad-street, Newgate-street, Old Broad-street, Poultry, Princes-street, Queen-street-place, Queen Victoria-street, St. Martin's-le-Grand, St. Andrew-street, St. Bride-street, St. Paul's Churchyard, Threadneedle-street, Throgmorton-street, Upper Thames-street, Victoria Embankment Approach, West Smithfield.

Based upon these charges, a hoarding in a first-class street having an 18ft. frontage and two 5ft. returns, and assuming it to be covered with advertisements up to a height of 40ft., will, at 4d. per foot super. per month, amount to £18 13s. 4d., and for six months £112; and for a similar hoarding in other streets at 2d. per foot per month, the charge for a hoarding for the first month would be £9 6s. 8d., and for six months £56.

There will be a constant supervision of the hoards to see that the superficial space that is licensed and paid for is not exceeded.

The present maximum height that a hoard will be licensed for is 40ft., though the height may be increased by order of the Commissioners if they think it wise to do so later on.

Section 5 of the Advertising Stations (Rating) Act, 1889, gives the Commissioners as the local authority under the Sewers Act when granting a license for hoards upon or over the public way, or upon or over their own property, power to include in such license a condition prohibiting the affixing of any advertisements to such hoarding, or sanctioning the affixing of advertisements thereto on payment and on such conditions as the commissioners may determine.

The penalty which may be recovered by the Commissioners for using any hoard otherwise than as permitted by the license is not exceeding £5, with a farther sum of 40s. per day after notice in writing to discontinue such use.

The following are the charges made and suggested in the various districts given:—

St. George the Martyr (Southwark):—

Per yard super. per week 0 0 1

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St. Saviour's Board of Works:—

		£	s.	d.
For first-class streets...	per yard super. per week	0	0	1½
Second-class ditto.....	ditto	0	0	1
Third-class ditto.....	ditto	0	0	0½

St. Giles' Board:—

Main thoroughfares...	per yard super. per month	0	1	6
Other ditto ...	ditto	0	0	9

St. Martin's-in-the-Fields:—

This vestry has decided to prohibit the affixing of advertisements on hoardings.

Holborn Board:—

Main thoroughfares..	per yard super. per month	0	1	6
Other streets	ditto	0	0	9

Fractions of a yard charged as a yard.

Lambeth:—

Per yard super. per week 0 0 1

Plumstead Board:—

Per week 0 2 6

No advertisements allowed unless an extra sum of 10s. be paid on granting license, and 2s. 6d. for every week beyond first four weeks, the Board reserving the right to require additional fees in any particular case.

St. Margaret and St. John, Westminster:—

No scale. Charge calculated on rent received, upon which the amount in the £ of the current rates, payable monthly in advance, is charged. Where the licensee refuses to disclose receipts, he is charged on the basis of the ascertained rent in similar cases.

St. James, Westminster:—

Per foot super. per week.....1d. to 2d.

No uniform scale has been adopted; but each application is separately considered. The charges vary approximately from 1d. to 2d. per foot super. per week.

St. John's, Hampstead:—

Per foot super. per month 0 0 1

St. Luke's, Middlesex:—

First class	per yard super. per month	0	0	2
Second class	ditto	0	0	1
Third class	ditto	0	0	½

Greenwich Board:—

Per week 0 2 6

(This is inclusive for every 20ft., more or less. Fractions of a week reckoned as a week.)

Wandsworth Board:—

No scale. Each application considered separately.

St. George's, Hanover-square:—

For the first six months in first-class streets	per month	0	0	6
Afterwards	ditto	0	0	9
For the first three months for other streets	ditto	0	0	2
For the second ditto	ditto	0	0	3
For the third ditto	ditto	0	0	4

Bermondsey:—

Per yard super. per month..... 0 0 2

Hackney Board:—

For every 100ft. run main roads	per month	0	2	0
Ditto side streets	ditto	0	1	0

(These rates adopted for six months.)

Paddington:—

Per foot super. per month 0 0 1

St. Olave's Board:—

For first rate streets...	per yard lineal per week	0	0	3
Ditto for second rate...	ditto	0	0	1½

St. Mary, Battersea:—

Main streets... per yard lineal...	(time not stated)	0	1	0
For other streets		0	0	9

Strand Board:—

Licenses granted on condition that no advertisements shall be affixed to hoarding.

Hammersmith:—

Advertising prohibited.

St. Pancras:—

First-class streets	per yard	0	1	0
Second ditto	ditto	0	0	6

(No time stated. Charges tentative for six months.)

St. Giles', Camberwell:—

First class streets...	per yard super. per month	0	0	6
Second class ditto...	ditto	0	0	4

Whitechapel Board:—

Main roads	per yard super. per month	0	0	6
All other roads.....	ditto	0	0	3

Lewisham Board:—

No scale adopted. Advertisements prohibited, unless by special permission.

St. James and St. John, Clerkenwell:—

Licensing fees to be increased to meet the rating of hoardings. No scale adopted.

Poplar Board:—

Inclusive charge provided hoarding is not larger than 16ft. or higher than 12ft. for first-class streets ..... per month £ s. 0 1(

(For every additional 12ft. in height, 10s. and 5s respectively for first and second-class streets.)

Second-class streets .....per month 0 1

St. Mary Abbotts', Kensington:—

No fixed scale is yet adopted. Each application is treated on its merits.

Chelsea:—

For hoardings from 10ft. long and 20ft. high to 100ft. long and over 40ft. high, in streets in which the rateable value of houses is under £50.....per week 1s. to 8

(A like sum to be charged for every additional £50 able value. This is a temporary arrangement.)

Bethnal Green Vestry:—

Have not yet come to a definite conclusion

MASON (*continued*).

CORNISH GRANITE.

In block, including waste profit and cartage within 4 miles of depth	per foot cube	0
Ditto including hoisting, setting, and scaffolding	ditto	0
Plain ashlar work, quarry worked, with base and capping courses, set complete.....	per foot cube	0 1
Ditto fine-axed work	ditto	0 1
Plain shop-fronts, polished and set complete	ditto	0 1
Where part is moulded	ditto	1
Plain work to beds and joints ...	per foot super.	0
Ditto to face rough-axed	ditto	0
Ditto fine.....	ditto	0
Ditto fine circular	ditto	0
Sunkwork fine-axed.....	ditto	0
Moulded work ditto	ditto	0
Ditto circular ditto	ditto	0
Fair-axed steps set complete— 9 by 6 square	per foot run	0
Ditto ..... 10 by 6 ditto	ditto	0
Ditto ..... 10 by 7 ditto	ditto	0
Ditto ..... 11 by 7 ditto	ditto	0
Ditto ..... 12 by 7 ditto	ditto	0
Rough axed bases for iron columns— 18 by 18 by 6	each	0
Ditto ..... 18 by 18 by 9	ditto	0
Ditto ..... 24 by 24 by 9	ditto	1
Ditto ..... 24 by 24 by 12	ditto	1
Ditto ..... 36 by 36 by 18	ditto	4

ABERDEEN.

Granite in block, including waste, profit, and cartage within 4 miles of the merchant's depot in London.....	per foot cube	0
Ditto including hoisting, setting, and scaffolding	ditto	0
Plain ashlar, quarry worked, with bases and capping courses set complete	ditto	0
Ditto fine-axed work	ditto	0
Plain shop-fronts, polished and set complete	ditto	1
When part is moulded.....	ditto	1
Plain work to beds and joints...	per foot super.	0
Ditto to face rough-axed	ditto	0
Ditto ditto fine ditto	ditto	0
Ditto ditto circular ditto	ditto	0
Sunk work fine-axed	ditto	0
Moulded work ditto	ditto	0
Ditto ditto circular...	ditto	0
Fair-axed steps set complete— 9 by 6 .....per foot run		0
Ditto ..... 10 by 6	ditto	0
Ditto ..... 10 by 7	ditto	0
Ditto ..... 11 by 7	ditto	0
Ditto ..... 12 by 7	ditto	0
Rough-axed bases for columns, &c.— Ditto ..... 18 by 18 by 6.....	each	0
Ditto ..... 18 by 18 by 9.....	ditto	0
Ditto ..... 24 by 24 by 9.....	ditto	1
Ditto ..... 24 by 24 by 12.....	ditto	1
Ditto ..... 36 by 36 by 18.....	ditto	5

POLISHED WORK.

Plain pilasters polished on face and 2 returns, and about 4in. on bed—measured on face .....per foot super.		0
Ditto 8in. on bed.....	ditto	0
Ditto 12in. on bed.....	ditto	1
Ditto over 12in. on bed at.....	per foot cube	1

COLUMNS.

3in. diameter up to	2ft. 6in. long	per foot run		0
4in. ditto	3ft. 6in.	ditto		0
5in. ditto	4ft. 6in.	ditto		0
6in. ditto	5ft. 6in.	ditto		0
7in. ditto	6ft. 6in.	ditto		0
8in. ditto	7ft. 6in.	ditto		0
9in. ditto	8ft. 6in.	ditto		0
10in. ditto	9ft. 0in.	ditto		0
11in. ditto	9ft. 0in.	ditto		0
12in. ditto	9ft. 0in.	ditto		1
15in. ditto	9ft. 0in.	ditto		1
18in. ditto	9ft. 0in.	ditto		1

MARBLE.

Marble in blocks at depot, including profit:—		
Sicilian (unassorted)	per foot cube	0
Ditto best	ditto	0
Vein (unassorted).....	ditto	0
Ditto best pencil	ditto	0
Statuary vein, 2nd	ditto	0
Ditto 1st	ditto	0

			£	s.	d.
itto ordinary 2nd		per foot cube	1	6	0
tto good		ditto	1	18	0
tto finest		ditto	3	15	0
sh Black		ditto	0	15	0
lgian Black		ditto	0	16	0
ove		ditto	0	15	0
rdilla		ditto	0	17	6
ack and gold		ditto	1	10	0
nna		ditto	2	10	0
ctoria Red		ditto	1	5	0
noa Red		ditto	1	8	0
dian Griotte		ditto	2	10	0
aperor's Red		ditto	1	3	0
vante		ditto	1	5	0
sh Green		ditto	0	18	0
Sylvester		ditto	1	0	0
uge Royal		ditto	0	18	0
Ann's		ditto	0	18	0

Sawn slabs and scantlings, not exceeding 15ft. per. at depot, including profit:—

ilian	⅜in. thick	per foot super.	0	1	6
tto	1in. ditto	ditto	0	1	8
tto	1½in. ditto	ditto	0	1	11
tto	1¾in. ditto	ditto	0	2	2
tto	2in. ditto	ditto	0	2	8
tto	2½in. ditto	ditto	0	3	0
tto	3in. ditto	ditto	0	3	6
tto	3½in. ditto	ditto	0	4	2
to	4in. ditto	ditto	0	4	10
to	4½in. ditto	ditto	0	5	4
to best	⅜in. ditto	ditto	0	1	8
to	1in. ditto	ditto	0	1	11
to	1½in. ditto	ditto	0	2	1
to	1¾in. ditto	ditto	0	2	4
to	2in. ditto	ditto	0	2	10
to	2½in. ditto	ditto	0	3	3
to	3in. ditto	ditto	0	3	10
to	3½in. ditto	ditto	0	4	6
to	4in. ditto	ditto	0	5	2
to	4½in. ditto	ditto	0	5	9
n	⅜in. ditto unsorted	ditto	0	1	8
to	1in. ditto	ditto	0	2	0
to	1½in. ditto	ditto	0	2	2
to	1¾in. ditto	ditto	0	2	6
to	2in. ditto	ditto	0	3	0
to	2½in. ditto	ditto	0	3	6
to	3in. ditto	ditto	0	4	0
to	3½in. ditto	ditto	0	4	9
to	4in. ditto	ditto	0	5	6
to	4½in. ditto	ditto	0	6	0
tuary	⅜in. ditto	ditto	0	1	9
to	1in. ditto	ditto	0	2	1
to	1½in. ditto	ditto	0	2	4
to	1¾in. ditto	ditto	0	2	8
to	2in. ditto	ditto	0	3	2
to	2½in. ditto	ditto	0	3	8
to	3in. ditto	ditto	0	4	3
to	3½in. ditto	ditto	0	5	0
to	4in. ditto	ditto	0	6	3
to	4½in. ditto	ditto	0	6	9
to, Vein 1st	⅜in. ditto	ditto	0	1	10
to	1in. ditto	ditto	0	2	2
to	1½in. ditto	ditto	0	2	8
to	1¾in. ditto	ditto	0	3	0
to	2in. ditto	ditto	0	3	10
to	2½in. ditto	ditto	0	4	4
to	3in. ditto	ditto	0	4	10
to	3½in. ditto	ditto	0	5	6
to	4in. ditto	ditto	0	6	4
to	4½in. ditto	ditto	0	7	0
to, ordinary	⅜in. ditto	ditto	0	2	9
to	1in. ditto	ditto	0	3	9
to	1½in. ditto	ditto	0	4	9
to	1¾in. ditto	ditto	0	6	0
to	2in. ditto	ditto	0	7	3
to	2½in. ditto	ditto	0	8	9
to	3in. ditto	ditto	0	10	0
to	3½in. ditto	ditto	0	11	3
to	4in. ditto	ditto	0	13	0
to	4½in. ditto	ditto	0	15	0
tuary, good	⅜in. ditto	ditto	0	6	3
to	1in. ditto	ditto	0	7	3
to	1½in. ditto	ditto	0	9	6
to	1¾in. ditto	ditto	0	10	9
to	2in. ditto	ditto	0	13	0
to	2½in. ditto	ditto	0	14	9
to	3in. ditto	ditto	0	16	6
to	3½in. ditto	ditto	0	18	0
to	4in. ditto	ditto	1	1	0
to	4½in. ditto	ditto	1	4	0
tuary, finest	⅜in. ditto	ditto	0	9	0
to	1in. ditto	ditto	0	11	3
to	1½in. ditto	ditto	0	12	6
to	1¾in. ditto	ditto	0	14	9
to	2in. ditto	ditto	0	17	6
to	2½in. ditto	ditto	1	1	0
to	3in. ditto	ditto	1	4	0
to	3½in. ditto	ditto	1	7	6
to	4in. ditto	ditto	1	10	0
to	4½in. ditto	ditto	1	13	0
h black	⅜in. ditto	ditto	0	2	3
to	1in. ditto	ditto	0	2	8
to	1½in. ditto	ditto	0	3	0
to	1¾in. ditto	ditto	0	3	4
to	2in. ditto	ditto	0	4	3
to	2½in. ditto	ditto	0	5	3
to	3in. ditto	ditto	0	6	3
to	3½in. ditto	ditto	0	7	0
to	4in. ditto	ditto	0	8	0
to	4½in. ditto	ditto	0	8	9
gian black	⅜in. ditto	ditto	0	2	6
to	1in. ditto	ditto	0	2	11
to	1½in. ditto	ditto	0	3	3
to	1¾in. ditto	ditto	0	3	6
to	2in. ditto	ditto	0	4	6
to	2½in. ditto	ditto	0	5	6
to	3in. ditto	ditto	0	6	9
to	3½in. ditto	ditto	0	7	6
to	4in. ditto	ditto	0	8	3
to	4½in. ditto	ditto	0	9	0
e	⅜in. ditto	ditto	0	1	10
to	1in. ditto	ditto	0	2	2
to	1½in. ditto	ditto	0	2	8
to	1¾in. ditto	ditto	0	3	0
to	2in. ditto	ditto	0	3	10

			£	s.	d.
Ditto	2½in. ditto	per foot super	0	4	4
Ditto	3in. ditto	ditto	0	4	10
Ditto	3½in. ditto	ditto	0	5	6
Ditto	4in. ditto	ditto	0	6	4
Ditto	4½in. ditto	ditto	0	7	0
Bardilla	⅜in. ditto	ditto	0	1	11
Ditto	1in. ditto	ditto	0	2	3
Ditto	1½in. ditto	ditto	0	2	9
Ditto	1¾in. ditto	ditto	0	3	2
Ditto	2in. ditto	ditto	0	4	0
Ditto	2½in. ditto	ditto	0	4	6
Ditto	3in. ditto	ditto	0	5	0
Ditto	3½in. ditto	ditto	0	5	10
Ditto	4in. ditto	ditto	0	6	9
Ditto	4½in. ditto	ditto	0	7	6
Black and gold	⅜in. ditto	ditto	0	3	9
Ditto	1in. ditto	ditto	0	4	4
Ditto	1½in. ditto	ditto	0	5	6
Ditto	1¾in. ditto	ditto	0	6	2
Ditto	2in. ditto	ditto	0	7	3
Ditto	2½in. ditto	ditto	0	9	0
Ditto	3in. ditto	ditto	0	10	3
Ditto	3½in. ditto	ditto	0	11	9
Ditto	4in. ditto	ditto	0	13	0
Ditto	4½in. ditto	ditto	0	14	6
Sienna	⅜in. ditto	ditto	0	6	0
Ditto	1in. ditto	ditto	0	7	3
Ditto	1½in. ditto	ditto	0	8	9
Ditto	1¾in. ditto	ditto	0	10	0
Ditto	2in. ditto	ditto	0	11	3
Ditto	2½in. ditto	ditto	0	12	6
Ditto	3in. ditto	ditto	0	15	0
Ditto	3½in. ditto	ditto	0	16	9
Ditto	4in. ditto	ditto	0	18	6
Ditto	4½in ditto	ditto	1	1	0
Victoria Red	⅜in. ditto	ditto	0	2	3
Ditto	1in. ditto	ditto	0	2	8
Ditto	1½in. ditto	ditto	0	3	0
Ditto	1¾in. ditto	ditto	0	3	4
Ditto	2in. ditto	ditto	0	4	3
Ditto	2½in. ditto	ditto	0	5	3
Ditto	3in. ditto	ditto	0	6	3
Ditto	3½in. ditto	ditto	0	7	0
Ditto	4in. ditto	ditto	0	8	0
Ditto	4½in. ditto	ditto	0	8	9
Genoa Green	⅜in. ditto	ditto	0	4	0
Ditto	1in. ditto	ditto	0	4	9
Ditto	1½in. ditto	ditto	0	5	10
Ditto	1¾in. ditto	ditto	0	6	9
Ditto	2in. ditto	ditto	0	8	0
Ditto	2½in. ditto	ditto	0	9	3
Ditto	3in. ditto	ditto	0	10	0
Ditto	3½in. ditto	ditto	0	11	3
Ditto	4in. ditto	ditto	0	12	3
Ditto	4½in. ditto	ditto	0	13	3
Italian Griotte	⅜in. ditto	ditto	0	7	6
Ditto	1in. ditto	ditto	0	8	6
Ditto	1½in. ditto	ditto	0	10	9
Ditto	1¾in. ditto	ditto	0	12	3
Ditto	2in. ditto	ditto	0	14	6
Ditto	2½in. ditto	ditto	0	17	0
Ditto	3in. ditto	ditto	0	19	0
Ditto	3½in. ditto	ditto	1	1	6
Ditto	4in. ditto	ditto	1	4	0
Ditto	4½in. ditto	ditto	1	8	0

THE ARCHITECTURAL ASSOCIATION EXCURSION IN SHROPSHIRE.

[WITH LITHOGRAPHIC AND OTHER ILLUSTRATIONS.]

NEXT Monday the proceedings of this Society's annual excursion will commence at Shrewsbury, in accordance with the programme which we printed in our issue for July 24th last, and we shall commence an illustrated report of the proceedings in our next issue. The district to be visited, although it by no means includes all that is worth seeing in the way of Domestic work, for which the county has always been so famous, at any rate furnishes clearly quite sufficient for the proper work of one week, if the buildings are to be sketched and studied with anything like the care which they unquestionably deserve. Few parts of England have influenced the best modern Domestic work of the day more directly than Shropshire, with its choice and comparatively unknown examples of timber building, and its Renaissance work in brick and stone. Park Hall, near Oswestry*, and Pitchford Hall, to be seen on Friday, are among the largest specimens of what is called the "magpie" style of construction; while Moreton Corbet and Condover may be classed among the leading examples of the Elizabethan and English Renaissance type of design, as represented in the revival which recent years have seen in Shropshire by the late W. Eden Nesfield, at Cloverley Hall†; "Adcote," by Mr. R. Norman Shaw, R.A.‡; and "Peverey," § now building from the designs of Mr. Aston Webb, near Baschurch—three works of considerable character, and of the first importance. Turning back further in the historic page of architectural art as seen in the Marches of the Welsh border country, we are presented with even more notable and conspicuous instances of Domestic building still existing in almost unique completeness, although dating from the 13th century. We refer to the delightful castle at Stokesay and the rather later manor-house at Acton Burnell—a building which was designed by the same architect as the famous Bishop's Palace at Wells, in Somersetshire. For a Perpendicular house of equal interest, Shropshire can still boast the fairly perfect specimen at Wenlock, where the prior's lodging, adjoining the ruins of the Priory, is one of the few entire houses now standing of that period. Of all these and more less-celebrated buildings none, however, present such considerable and paramount interest as Stokesay Castle, which for its early date and continuity of style stands alone, having neither suffered restoration nor material alteration in mediæval or modern times. The banqueting-hall is hardly to be matched elsewhere, even among the handsomest old national mansions of later date. The two towers of the castle most materially increase its remarkably imposing appearance externally, besides adding a quaintness and singularity to the plan. We have, therefore, chosen this specimen of Salopian architecture for a leading place among our illustrations to-day, giving a general view from the N.E. of the entire group as seen from the churchyard, and a second sketch representing the richly-timbered gatehouse, with the tower of Stokesay Church in the background of the picture. The plan printed in the corner of the lower drawing serves as a key illustrative of the buildings as they now exist. Two entirely different sketches of the castle will be found in the BUILDING NEWS for Sept. 7, 1888.

Stoke, to speak in brief outline of its history, belonged to Ældred of Edric Sylvaticus at the Conquest; but when he joined the Welsh rebellion, Roger de Montgomery had it given him. He died, and the Crown bestowed the property on Walter de Lacy, from whom the Say family received it. Its name of Stokesay first appears in a grant of the advowson to Haughmond Abbey in 1156. In 1498 the last of the Ludlow family held the castle, which then by marriage passed to the Vernons of Haddon Hall, in Derbyshire. Members of that illustrious family lived at Stokesay till 1607, when the Mainwarings bought it, and then the Cravens became the owners, and remained so till some five-and-twenty years ago, when Mr. Allcroft, of Stokesay Court, bought the place. Since 1706 no one has really lived in the house, which for some while was occupied as farm buildings and partly as a smithy. The castle is situated in a most beautifully-wooded valley, a short walk from the Craven Arms Railway Station, on the line between Shrewsbury and Ludlow. As will be seen by a reference to the plan, the buildings and courtyard are surrounded by a moat about 20ft. wide, the only entrance being by way of the Elizabethan gatehouse. A Gothic canopied well-house once stood in the courtyard; but this, like some other timber buildings (their position is dotted on our plan), has been removed. The southern tower, the only part of the buildings having any really serious suitability for defence, is a remarkable structure in three stories of well-proportioned elevation, and taking the shape of an irregular polygon on plan, presenting on the exterior front a double octagonal façade. Ten years ago, for some inscrutable reason, the pyramidal roof which crowned this tower, rising behind the embrasures, and partaking of the irregularity of their plan, was taken down, and a lead flat at great cost was substituted. This roof was in capital repair, and was certainly unique among the secular buildings of England. The tower is connected with the main building by a covered passage, and a small staircase built in the thickness of the tower walls leads to the upper floors. The windows in the tower have seats in the sills, with shutters inside, and where they have been removed from the other openings the hinges and catches may still be seen. The hall runs the whole height of the building between the towers, and has handsome transomed windows with trefoiled lights. Glass was inserted for the upper openings, but only shutters were used below. The heavy and well-smoked timbers of the massive double collar-beam roof rest on stone corbels, enriched with good Early English mouldings. A shoulder-headed door at the south end of the hall leads to the lower apartments of that wing. The north wing rooms are reached by a

* See BUILDING NEWS, Feb. 27th, 1891, for view of Park Hall, and details.

† See BUILDING NEWS, June 3rd, 1881, and July 17th, 1891.

‡ See BUILDING NEWS, Dec. 20th, 1878.

§ See BUILDING NEWS, May 16th, 1890.

solid timber staircase, and their upper part is built of wood and plaster, resting on walls of great thickness, with oversailing brackets, as seen in the picture. This upper timber-work was added probably in the 16th century. At the other end of the building an external staircase communicates with the withdrawing-room, where the primitive style of the apartment is masked by some rich 17th-century panelling, and above the projecting archway of the fireplace a florid overmantel in gorgeous elaboration of carving, heightened with gilding and the remnants of colour, forms a great feature. We publish a carefully-measured drawing of it to scale, kindly contributed by Mr. Arthur Marshall, of Nottingham. Above the timber-built gatehouse archway is a quaint sculpture, illustrative of the fall of Adam, and other carvings worth noticing. The church, which served as a chapel to the castle, presents a commonplace, re-edified edition of a small so-called "Norman" church, built in 1664. High dark oak pews fill the nave, and have old hinges and enrichments, while in the chancel is a canopied Jacobean pew, and near it is a good old carved English chair. The lithographic page of "Shropshire Studies" which we publish to-day are from the sketchbook of Mr. Geo. P. Bankart, of Leicester, and include some eminently typical specimens of detail. The timber gable from the south transept of Condover Church is particularly interesting, and the Decorated traceried doors from the porch of St. Mary's, Shrewsbury, are equally so. The houses in Dog Pole and in Butcher's-row, Shrewsbury, are very characteristic, like the gable from the Holy Cross in the same town. The Raven Inn at Much Wenlock is graced with the curious old wrought-iron sign here illustrated, and surmounted by the "Wise Old Bird." The half-timber house with the big bay window at Wenlock is suggestive, and the detail of the fenestration of the cloister to the prior's house at the abbey is a welcome addition to the sheet, and so is the chimneypiece drawn from Ludlow. Our remaining illustrations show the "Reader's House" at Ludlow, the "Gatehouse" and Market or Guild Hall at Much Wenlock, over its timber piazza, together with some more timber gables and fronts in the Square and High-street, Shrewsbury. These admirable sketches are from the skilful pen of Mr. Ed. Hodkinson, of Chester. A dashingly-drawn double-page of sketches by Mr. Oliver Baker from the neighbourhood of Ludlow was published in the Building News for Sept. 21, 1888, when we reviewed Mr. G. Woolley's indispensable book about the town. Other drawings of Salopian buildings by Mr. Bankart were given by us in our pages for March 7th, May 30th, and Oct. 17th, 1890.

HOT-WATER ENGINEERING.—IX.

Supply of Hot Water for Baths and Domestic Purposes.

The Cylinder System (*continued*).

In the last paper it was particularly recommended that the secondary return (the return of the rising main) be brought into the cylinder near the top; for as the water proceeds *up* this pipe to a tap, when it is opened, just as freely as it does up the rising main itself, it is necessary to be cautious as to where it is connected, and on no account must it be anywhere near the cool water in the apparatus, or where the cold water flows in. By connecting it near the top of the cylinder, about 6 to 8in. down the side, we thus get both the pipes that are in communication with the taps starting from a source where the hottest water always is to be found, be the quantity small or large. When a tap is opened the water will proceed as indicated by the arrows in Fig. 27, a direction similar to that illustrated in the last paper; but note from whence the water starts up the secondary return. This water comes from the top of the cylinder, where it is hot, and not from the bottom, where it is always cold, or cold is always flowing in. It cannot be repeated too often that an apparatus may fail entirely because the hot water cannot be drawn from within it. It takes a higher degree of skill to avoid this than it does to get the water hot. This latter is so easily effected by providing a boiler fully powerful.

In the last paper it was shown that the rising main could be carried up around one portion of the building, returning by a different route, so as to pass by all the positions that taps were needed in—this being done to avoid long single draw-off services. Sometimes only one tap is situated a distance from the rising main, and it may then be found inconvenient to bring the return round in this direction. In this case a returned draw-off service can be introduced instead. This would be effected as Fig. 28, a similar method to that adopted in the tank system, but not having the pronounced disadvantage that method has of drawing cool or cold water along the returned portion as has been explained. In connecting up this

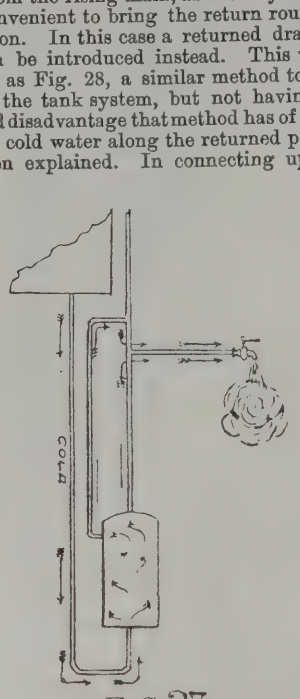
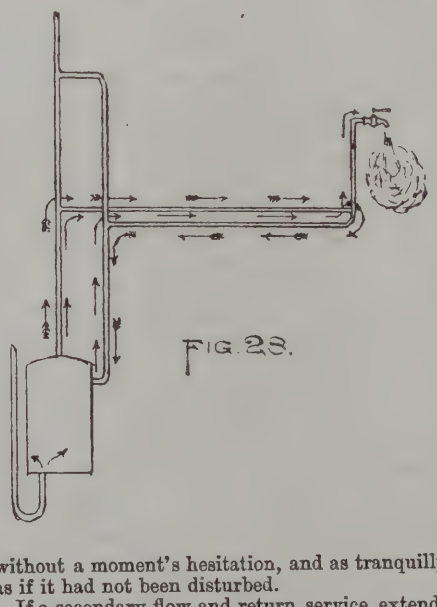


FIG. 27.

returned draw-off service the secondary flow and return, from which it is taken, would retain the same features as last explained, and a glance at the last illustration will make it clear that this returned draw-off service will not only circulate properly, but will provide hot water so long as any remains in the apparatus. The feathered arrows in this drawing show the direction the water takes when circulating normally. The arrows without feathers show the direction the water takes when the tap is opened. It is peculiar to note (it can be instantly observed in a glass apparatus) that when the tap is closed the water is travelling downwards along the secondary return; the instant the tap is opened the direction is reversed (see arrows), and immediately the tap is closed again it resumes its downward course

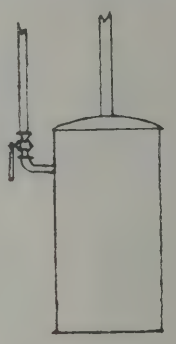

FIG. 28.

without a moment's hesitation, and as tranquilly as if it had not been disturbed.

If a secondary flow and return service extends around a large residence, and is not covered with felt or some such material, it loses a deal of heat, which is prejudicial to success at any time. Even if the power of the apparatus can afford the loss, the principle is wrong, for why should the fire be applied to heating the water if a moderate or fair proportion of the heat is afterwards diffused and lost in useless places? This, however is not the only drawback, as the fact of the cylinder being in a warm kitchen can be utilised to advantage by making it retain its heat all night, and yield water before the fire is lighted in the morning, if we stop this lavish and useless distribution of heat from the pipes during the night.

The introduction of a stop-cock in the secondary return will effect this, as by closing the cock at night the circulation is at once stopped, and the warm water that is in the cylinder remains there. If the cylinder be felted and encased, the length of time the water will remain hot after the fire is extinguished may be considered astonishing. By this arrangement hot water could be had until long past midnight, and warm water in the early morning. This is supposing that hot water be left in the cylinder overnight. There is no objection whatever to this stop-cock, as it is not a dangerous element in the slightest degree. It is closed at night and opened in the morning, but should the opening of the tap in the morning be forgotten, then the only trouble is that a deal of cold water would have to be drawn from the taps before hot was obtained, as the closing of the cock would convert this service into a single pipe rising main; that is to say, the utility of the return would be lost while the stop-cock remained closed; but the first person who went to a draw-off tap would discover the omission.

The best place for this stop-cock is down close to the cylinder, and should be easily within reach; if possible, as Fig. 29. It is not so likely to be overlooked as it would be in an inconvenient position. If it cannot be got at the point shown by reason of this piece of pipe being out of sight, then it can be placed in a horizontal portion of the return with a cross key and chains attached as Fig. 30. If the kitchen range (in which the boiler is fixed) is of that kind which has the fire closed as usual for all general purposes, but which permits of the fire being opened when the


FIG. 29.

work of the day has ceased, it is a great advantage, as it enables one to have the water kept hot all night, ready for early morning, with greater facility than ever. The opened fire does not burn fiercely like it does when closed, but resembles the fire in an ordinary open grate, which, if judiciously fed with fuel, will sometimes have red cinders in it six hours after it was last attended to. If, therefore, a fire of this description is opened, and fed with some small coal the last thing at night, there should not be the least doubt about having a warm bath before the kitchen fire is lighted in the morning. This, supposing the apparatus is carried out as explained, or is well covered with felt everywhere.

The size of pipes used in the cylinder system vary somewhat from those in the tank system. In this latter the main flow and return between boiler and tank are rarely larger than 1¼in., commonly 1in. If a larger than 1¼in. pipe were used it would add materially to the aggregate contents of the apparatus, so that a boiler capable of working a 50-gallon tank with such pipe ought not, perhaps, to have more than a 35-gallon tank with 1¼in. pipe if the system extended far. This increased capacity of the pipe could be easily allowed for; but there is another serious objection with large pipe in the cylinder that it radiates and loses more heat than a small size, unless it be well covered with felt, which the last, and probably the most material objection to the larger pipe is the increased cost both in material and labour of fixing, which is not proportionate.

With exception of these objections, every thing is in favour of having large pipes (I am alluding to the tank system), the circulation taking place more freely and rapidly, and, with

s most important, they do not so quickly get topped with "fur." A 1¼in. pipe has a fourth more interior surface than a 1in., so that a given thickness of incrusted deposit would be a fourth onger time in developing itself; then, when we ave a ¼in. deposit in a 1¼in. pipe, the bore is ly reduced to ¾in.—quite sufficient to let the pparatus work steadily—whereas with a 1in. ipe the bore would be reduced to ½in., when it ecomes time for its renewal. In soft-water istricts a small-sized pipe, say 1in. and ¾in., can be uch more frequently used, as they do not ecome stopped; but with hard water a large ipe should be given preference always.

The large pipe is ultimately economical, as the enewal of pipes is so serious and expensive a natter. It necessitates the dismantling of the ange (which stops cooking operations, of ourse), and the entire renewal of the affected arts, as to attempt to clear the choked pipes ould be more expensive still. It is quite ossible to clear a pipe if specially desirable. It

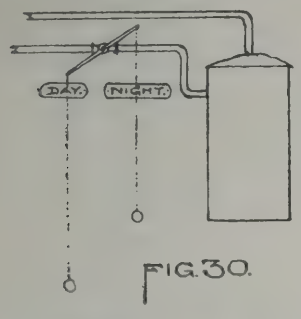


FIG. 30.

ould be well heated, when the superior pansion of the metal causes the pipe to dis-gage itself from the deposit, and a subsequent mmering will cause it to crumble out. As the reatest deposit is always in the pipes nearest the oiler, and more so in the flow than in the turn, a common and very good practice in e tank system is to have large pipes, say 1¼in., r 20ft. from the boiler in the floor, and a few et in the return. The remainder of these pipes ust be 1in. This refers to ordinary domestic ndertakings of a moderate character. In large ndertakings, hotels, instituttons, and often-mes country mansions, larger pipes are needed; t a floor and return service of the tank system holly carried out in a larger pipe than 1½in. is decided rarity (except for heating purposes). 1¼in. pipe will be sufficient for all except very rge works.

The next paper will deal with the size of pipes ost suited for the cylinder system, and will give st sized cylinders (or tanks) for certain orks.

NEW MUNICIPAL BUILDINGS FOR BATH.

THE Corporation of Bath received on Tuesday a report from Mr. William Young, R.I.B.A., of Lancaster-place, Strand, as to e best mode for securing additional accommo-tion for municipal purposes. He suggested two ternative schemes. Under No. 1 he would lace the whole of the building required for creased municipal accommodation, and the new olice-court and rooms in connection therewith, the south side of the Guildhall. This would ke a portion of the market and the whole of e houses in Orange-grove up to the police-ation. By this plan the new court and the resent one, with all the rooms, would be in mmediate connection with the present court, nd the council-chamber and municipal offices ould also be in immediate connection with the resent council-chamber and staircase. On the orth side of the Guildhall the Art Galleries and cience and Art Schools would be placed. This te would take the ground occupied by the White Lion Hotel and the municipal offices djoining. The façade of the Art Gallery, &c., ould be so designed as to form one important ile of buildings, extending from Bridge-street Orange-grove, with the Guildhall as a centre. nder Scheme No. 2, the market and other pro-erty on the south side of the Guildhall is not terfered with. The new court and municipal ccommodation is placed on the site of the White ion Hotel. By this plan it will not be possible get a communication between the new court nd the present one on the ground floor, although on the first floor communication can be got between the new council-chamber and other apartments on the first floor and the present chambers. He would put the Art Gallery and Science and Art Schools at the corner of Bridge-street and Newmarket-row, and, to make the scheme complete, would get a frontage to Bridge-street extending from High-street to Newmarket-row. The centre portion of the building could be used to form a grand arcade-entrance leading to the centre of the market, with, perhaps, shops on each side of the arcade. In both schemes Mr. Young suggests removing the inner row of piers surrounding the octagonal centre of the market, putting a new domed iron roof extending to the outer wall of the octagonal centre. Under scheme No. 1, the cost of a building two stories high—*i.e.*, ground and first floors, including a basement under the whole building, the floors to range with present building, would be about £19,000. If with another floor added—*i.e.*, basement, ground, first and second floors, the cost would be £23,000. The cost of a building under scheme No. 2, including basement, ground, and first floors, would be £17,000. If with basement, ground, first, and second floors, £21,000. The city corporation, on the recommendation of the joint committee, decided to adopt scheme No. 1, and to institute an open competition for designs, with Mr. Young as assessor. The question of the premiums to be offered was left to the committee to arrange.

THE LONDON CARPENTERS' STRIKE.

THE dispute in the Metropolitan building trade, now in its fifteenth week, appears no nearer settlement than before. As had been generally expected, the terms offered by the masters last week were unanimously rejected by the men at a meeting held at the Old Friends' Hall, St. Martin's-lane, on Thursday night in last week, although a resolution was passed stating that they were willing to submit their demands to a board of arbitration, to be chosen by mutual agreement. At an adjourned meeting, held on Friday night, it was decided to strike thirty more firms on Saturday. This was done, and three of those firms have already conceded the 10d. an hour and 47-hours week, making a total of forty firms that have now yielded the point. Funds are coming in freely to the United Trades Committee. £700 has been received from the Amalgamated Society of Engineers as the first results of a levy of 3d. per member, while levies varying from 3d. to 3s. have been made by branches of the Amalgamated Society of Carpenters and Joiners throughout the country.

A COLLEGE OF MASONS.

IN order to promote the study of the science of masonry among their fellow-workmen, the masons who have received certificates from the City and Guilds of London Institute have founded a College of Certificated Masons, to which only fully-qualified practical masons who have obtained certificates from the City and Guilds of London Institute will be admitted. To carry out its object, the college will send every year a circular with a list of its members to all employers and architects of the United Kingdom, pointing out the advantages to be obtained by following the classes of scientific masonry at the City and Guilds of London Institute. Workmen gain thereby greater ability and rapidity, and obtain facilities for rising in their calling. Several of the pupils have obtained first-rate appointments through attending these classes. The studies comprise two courses of thirty lessons each. In the lower course the geometrical knowledge required for setting out work is taught with practical applications. In the upper course the models of various interesting structures are set out and constructed, the subjects to be varied every year. Only pupils who have followed the lower course will be admitted to the upper course.

For each course certificates are delivered to the pupils who are considered both in practical and theoretical knowledge to offer sufficient guarantees of capacity to employers.

The fees for each course are one guinea. In case some workmen be not able to pay this sum all at once, the College of Certificated Masons will advance the money and be paid back in instalments.

The members of the college will act as assistant teachers in the classes, and advise the Guilds Institute as to the practical ability of the candidates for certificates.

A registry of members seeking employment will be kept at the college.

Forms for employers to certify to work done in their employment will be provided to members of the college and to the pupils of the classes. These certificates will be kept by the college; copies will be forwarded to persons requiring references about members.

All drawings made in the class will be stamped and certified by the college.

Until the number of the members of the college be sufficient to elect a president and council, all business will be transacted by the Master of the Classes.

Employers wishing to engage members as clerks of works, foremen, journeymen, or in any other capacity, should write to the Master of the Classes of Scientific Masonry, City and Guilds of London Institute, Exhibition-road, S.W.

ARCHITECTURAL & ARCHÆOLOGICAL SOCIETIES.

WILTS ARCHÆOLOGICAL SOCIETY.—The three days' meeting of this society was brought to a conclusion on Friday, when the members drove from Wilton and visited the churches of Coombe Bassett, Stratford Tovey, Bishopstone, and Broadchalk, returning at three o'clock. The proceedings terminated with a visit to Wilton House and grounds, where the Earl of Pembroke conducted the party over the building. Mr. C. E. Ponting, F.S.A., described the architectural features of the mansion and its characteristics, including the styles adopted by Inigo Jones and Wyatt. Lord Pembroke gave an interesting description of the interior, the paintings, and works of art.

CHIPS.

A new Roman Catholic church is about to be built opposite the ruins of the ancient town walls at Tenby, Pem. The style will be Late Decorated, and the building will consist of nave, chancel, and sacristy, with organ-chamber over, and with provision on the north side for an aisle, Lady-chapel, and porch. The church will be built of local stone, and in the east end, facing the main street of the town, will be a richly-traceried window, surrounded by statues of local saints. Mr. F. A. Walters, F.S.A., of Great Queen-street, Westminster, is the architect.

By the death of Professor Albert Kretschmer, of Berlin, Germany has lost, at the age of 66 years, one of her chief painters, who had devoted much time to the study of national costume and to theatrical mountings. In 1864 he published "The Costumes of all Nations," and in 1870 "The German National Costumes." In 1889 he retired on a pension, and has since become the founder of the "Museum of German National Costumes."

At the Wesleyan Conference in Nottingham, on Tuesday, it was reported that during the year there had been sanctioned the erection of 108 new chapels, 18 ministers' houses, 15 schoolrooms, and 133 alterations and enlargements. The total cost was estimated at £276,806; the total additional accommodation would be for 18,115 sittings. The amount actually expended on new erections and reduction of debt during the year had been £353,212.

A stained-glass window has just been put into the Abbey Church of Romsey by Messrs. Powell and Sons, of Whitefriars, London, to the order of the Hon. and Right Hon. E. Ashley. The subject of the representation is that of the sick and impotent folk at the pool of Bethesda, waiting for the angel to trouble the water. At the foot are the words: "In most loving memory of Sybella Ashley, her husband and children have placed this window."

A national subscription was opened some time ago for the erection of an equestrian statue to the late Emperor Frederick, on the scene of his victory at Wörth, and has already reached such an amount that a competition will shortly be opened designs for the monament.

At the next winter exhibition of the Royal Society of British Artists, the members intend to try the experiment of framing and hanging water-colour drawings with white mounts. It remains to be seen whether this return to the sober mounts of the days of Cox, De Wint, and Barrett will induce water-colour artists to adopt a lower and more suitable pitch of colour than has been the fashion during recent years.

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BARTON-ON-IRWELL UNION.—POST OFFICE, BRENTWOOD.—SHROPSHIRE STUDIES.—NEW PREMISES, DUKE-STREET, W.—OVERMANTEL IN STOKESAY CASTLE, SALOP.—STOKESAY CASTLE, SHROPSHIRE.—ARCHITECTURAL ASSOCIATION EXCURSION SKETCHES IN SHROPSHIRE.—THE SELECTED DESIGN FOR THE SOUTH KENSINGTON MUSEUM BUILDINGS.

Our Illustrations.

NEW WORKHOUSE BUILDINGS AT PATRICROFT, NEAR MANCHESTER, FOR THE GUARDIANS OF THE BARTON UNION.

The guardians of this union, in a selected competition of local architects, sent up three designs to the Local Government Board for the opinion of their architects, and the design of Messrs. Mangnall and Littlewoods was selected—a view of which we give in the Building News this week. The workhouse was originally intended to accommodate 600 inmates; but in consequence of the limited area of the site (which is about six acres in extent), and in accordance with suggestions of the Local Government Board, this has been reduced to 500 inmates. The buildings will be substantially erected with selected common bricks, with pressed bricks for quoins to doors and windows, and moulded brickwork with stone sparingly introduced. The eaves will overhang the walls, which gives protection to the work. The residential wards will in most cases have concrete and boarded floors, and the hospital buildings will be of the most modern type so far as regards sanitary construction, ventilation, and prevention from fire. The cost is expected to be about £24,000.

BRENTWOOD NEW POST-OFFICE.

This building, which has been recently finished, is a prominent feature in the High-street. The design is in Renaissance, of the 17th century, built of red brick, with Bath and Portland stone dressings, and slated with Bangor permanent green slates. The public office, which is 21ft. by 19ft., is lighted by two 5-light elliptical-headed windows; it is floored with pitch-pine blocks, and the fittings, of pitch pine and mahogany, are of pleasing design and finish. There is a corridor from the public office to sorting office, situated at the rear of the block, right and left of which are offices, instrument room, &c. In the basement is the linesmen's room, storage rooms, and cellars. On the right of the public office is the postmaster's private residence. The building was designed and superintended by Mr. A. T. G. Woods, M.S.A., architect, Brentwood, and the work most satisfactorily carried out by Messrs. Rogers and Robson, builders, Brentwood, at a cost of £2,000.

NEW PREMISES, DUKE-STREET, GROSVENOR-SQUARE.

These premises, now being erected for Messrs. Rose Bros., ladies and gentlemen's tailors, will form the central feature of a block of buildings on the east side of Duke-street, Grosvenor-square, which were illustrated in our issue of Feb. 13th last. The upper parts are entirely devoted to fitting rooms, workshops, and caretaker's rooms. The materials employed are red brick (six courses to the foot) and Ketton stone, with tiled roof. Messrs. Kirk and Randall, of Woolwich, are the contractors, and Mr. W. D. Caröe, M.A., F.R.I.B.A., the architect.

ARCHITECTURAL ASSOCIATION EXCURSION SKETCHES.

These illustrations are described in our preliminary notice of the places to be seen during this excursion next week, on p. 175.

THE SELECTED DESIGN FOR SOUTH KENSINGTON MUSEUM BUILDINGS.

Last week we announced the result in this important competition, when we briefly referred to the chosen design by Mr. Aston Webb. We now print the two principal plans, with the exterior view of his buildings. On pp. 171-72 will be found a critical description of all the designs, illustrations of which will shortly appear in our pages. Next week we shall publish further drawings of the selected design. Mr. Alfred Waterhouse, R.A., was, it will be remembered, the professional referee. These plans have been on view at the House of Commons this week, and will shortly be exhibited at South Kensington to the public.

CHIPS.

Messrs. R. Waygood and Co. took their staff to Richmond in a river steamer on Bank Holiday and dined them at the Castle Hotel. Over 400 passengers were on board. Only teetotal refreshments were provided, but the day was a merry one. The firm paid all expenses, thus adding another to the creditable instances in which employers are discountenancing the not very reputable plan of allowing their workmen to solicit customers for beanfeast subscriptions.

The partnership hitherto subsisting between Messrs. Hemsoll and Smith, of Sheffield, architects and surveyors, has been dissolved.

Sir Noel Paton, R.S.A., has declined to be put in nomination for the presidentship of the Royal Scottish Academy.

At a consistory court held at Chester Cathedral on Thursday in last week, a faculty was granted for taking down the whole of the present church at Wybunbury, with the exception of the tower, and rebuilding it to larger scale. The estimated outlay is £6,000, of which nearly £5,000 has been promised.

The local board of Ystradyfodwg have adopted plans by the engineer and surveyor, Mr. J. W. Jones, for the construction of two main sewers in the Rhondda Fawr and Rhondda Fach valleys. The first-named sewer will be nearly 11½ miles in length, and will chiefly consist of brickwork ranging up to 3ft. 3in. by 2ft. 2in. The Rhondda Fach system is a much less formidable undertaking, consisting of about 6¾ miles of 12in. and 15in. stoneware and iron pipes, chiefly laid in open cuttings.

Memorial stones of a new Wesleyan chapel will be laid in Huddersfield-road, Halifax, on Saturday. The building will include chapel with gallery seated for 700 people, and large schoolroom underneath. The cost is £5,300, and the chapel replaces one built in 1808.

The Kitchen Committee of the House of Commons in their report recommend that the kitchens should be removed to the top of the building, and be placed over the committee-rooms, so as to prevent the smell of cooking pervading the lower rooms. A similar proposal was mooted two or three years ago, but was not carried out.

Mr. Walter Mitchell, C.E., who superintended the erection of the Folkestone Art Treasures Exhibition five years ago, has been appointed clerk of the works by the War Office upon the erection of the new cavalry and artillery barracks, officers' mess and quarters, riding schools, stables, and other important buildings about to be built at Shornecliffe Camp under the Resident Commanding Royal Engineers. These and other building to follow will cost nearly £300,000, and will occupy from three to four years in construction.

Mr. Wignall, chief engineering assistant to Mr. T. de Courcy Meade, M.Inst.C.E., has been appointed assistant city engineer to the Municipality of Cape Town.

The foundation-stone of a new church for Harden, near Bingley, was laid on Saturday last. Messrs. Healey Brothers, of Bradford, are the architects. The church will be in the Early English style, with nave, chancel, and north aisle. The cost is estimated at £2,050, and the church will seat about 250. The internal fittings will be of pitch-pine, with open benches.

THE CONGRESS ON HYGIENE.

The seventh International Congress of Hygiene and Demography will be held in London during next week. The proceedings will be inaugurated on Monday afternoon by a general meeting to be held in St. James's Hall, Piccadilly, at 3 p.m., when the Prince of Wales, as President, will take the chair. The meetings of the sections will be held on Tuesday, Wednesday, Thursday, and Friday next, from 10 a.m. to 2 p.m., in the room of the Royal and other learned Societies at Burlington House, Piccadilly, at the University of London, Burlington Gardens, and at the Royal School of Mines in Jermyn-street. Saturday, the 15th inst., will be devoted to excursions, and on Monday, August 17th, at 11 a.m., the closing meeting of the Congress will be held in the theatre of the University of London.

Sir Arthur W. Blomfield, A.R.A., the president of Section 3, "Architecture in Relation to Hygiene," will deliver his inaugural address on Tuesday next, after which the following papers will be read:—"Open Spaces," by the Earl of Meath; "Hygienic Principles for the Extension and Internal Improvement of Towns," by J. Stübben, City Architect of Cologne; "The Hygiene of Groups of Dwellings at low rentals," by Charles Lucas, of Paris; "The Control of the Construction of Buildings," by Thomas Blashill, F.R.I.B.A., Superintending Architect to the London County Council; and "The Heating of Towns by Steam from Central Stations," by S. M. Burroughs.

On Wednesday, the papers will include "The Hygienic Composition of Walls of Dwelling Houses," by Prof. Emile Trélat, of Paris; "Pile Foundations in Marshy Land, and the exclusion of Damp from Dwellings," by P. J. H. Cuypers, architect, Amsterdam; "The Sanitation of Theatres," by Lennox Browne, F.R.C.S.Ed. an exhibition of diagrams illustrative of the Sanitation of Theatres, by Ernest Turner F.R.I.B.A., architect to the Royal Academy of Music; "Some Insanitary Superstitions in House Building," by H. H. Statham, F.R.I.B.A.; and "Four-inch Drains v. Six-inch Drains," by G. M. Lawford, A.M.I.C.E.

The papers for Thursday, are—"The Cause of the Unhealthiness of Workmen's Houses in Paris, and the Practical Remedies," by Emile Cacheux, Paris; "Common Lodging Houses," by P. Gordon Smith, F.R.I.B.A., architect to the Local Government Board; "Cottage Dwellings for the Industrial Classes," by Rowland Plumbe, F.R.I.B.A.; "Block Dwellings for the Industrial Classes," by John F. J. Sykes Medical Officer of Health, St. Pancras; and "Dr. Koch's New Institute," by J. Böttger Berlin.

On Friday papers are to be read on "English Isolation Hospitals," by R. Thorne Thorne, of the Local Government Board; "The Heathcot Hospital, Leamington," by Keith D. Young F.R.I.B.A.; "Temporary Local Isolation Hospitals as opposed to a Central Hospital," by the Rev. C. E. Few, Vicar of Seal, Sevenoaks; "Hospital Tents and Huts," by Dr. Duchausoy and "Asylum Arrangements and Construction, by Richard Greene, M.D., and G. T. Hine F.R.I.B.A. An exhibition of drawings of sanitary construction will be on view during the congress in the Library of the University of London.

The statue of the late Earl Sydney commenced by Sir Edgar Boehm for St. Nicholas Church Chislehurst, is now being erected over the family vault in the church. Sir Edgar Boehm was at work on this statue when he died early in this year, and it has been finished by Mr. Gilbert, R.A. The statue is being placed in the Scadbury Chantry.

A new police-station has been erected at Bar Dock, near Cardiff, and special attention has been paid to the ventilation, which is carried out on the Boyle system, the latest improved form of the self-acting air-pump ventilator being adopted for the extraction of the vitiated air, while fresh air is admitted through their improved air inlets.

At the last meeting of the City Corporation it was reported that a plot of land on the Embankment had been let on a building lease to the Thames Conservancy Board at a rent of £500, which was at the rate of £10,000 per acre. On a report of the Bridge House Estates Committee it was resolved to lay out the Bridge House Farm at Lewisham, fifty-two acres in extent, for building purposes, and to construct, at an expense of £11,500, the roads and sewers.

WAYSIDE NOTES.

WHEN the South Kensington Museum has got its decent elevations, it will surely be time for the fathers at the Oratory hard by to bestir themselves in the matter of a permanent and respectable front to their building, which makes at present a disgraceful show. I did hear a short time ago that the architect to the building was busy with the designs for the completion of this front. That this may be true we must all hope. The plan of leaving the most visible portion of a church in an unsightly condition, so that persons may be induced to give subscriptions to have the eyesore removed—a mode of procedure that one can imagine would have stirred up to indignation all the anti-Jesuit feelings of Charles Kingsley—is surely played out by this time.

There is to be an international congress on accidents to workmen, at Berne, from the 21st to 26th of September. Delegates from Belgium, Germany, France, Great Britain, Holland, Italy, Austria, Hungary, Russia, Sweden, Norway, Switzerland, and the United States have been already promised. The congress should, therefore, be successful, if a large number of foreign delegates can help forward the question. Upon this there should be much to say. We see plainly enough that workmen continue to suffer from disastrous accidents in many businesses and occupations, and we know that there are many cases where their sufferings get no compensation. If the Berne congress can remedy these evils, its members will earn the thanks of the labouring millions of every nationality.

I read that Prince Bismarck is engaged in producing, in his brick-kilns at Friedrichsruh, a new kind of brick and tile. The Prince is very active in business when at home. Not long ago his saw-mills were burned down; but he has now erected new ones, which are now occupied in executing some extensive orders for wood pavement. Altogether, from his mills and other industries, Prince Bismarck is reported to receive upwards of £10,000 per annum. We must look out for his new tile and brick. Hard, vitrified, adamantine, clinker bricks and tiles should be in the way of an "iron chancellor"; but we must wait till the articles are placed on the market before we can satisfy our curiosity as to their exact description and manufacture.

The Hanover Chapel Bill has received the Royal Assent, an amendment on the third reading in the House of Commons, that the Bill be read "a third time that day three months," having been lost by 85 votes to 55. The building will therefore almost certainly be rased to the ground, and "desirable" shops and other premises will presumably spring up on its site.

There has been little reference in Parliament to the Report of the Royal Commission on Westminster Abbey. On Friday last Mr. Shaw Lefevre asked the First Commissioner of Works whether he would lay before the House the designs which Mr. Pearson prepared for the Royal Commission for the monumental chapel on the site of the houses in Old Palace-yard, and also the evidence which Mr. Pearson gave in support of them, so that a full comparison might be made between this scheme and that for a chapel on the refectory site. While not in favour of the scheme that Mr. Shaw Lefevre would adopt, I think it would have been as well if Mr. Plunket could have placed all the drawings and evidence relating to the proposed Campo Santo before the Members of the House of Commons, so that a general ventilation of the whole matter might have been obtained. This, it seems to me, is just what is required, seeing that the Royal Commission brought the inquiry to so unsatisfactory an end. Had they properly agreed as to one of the schemes, there would have been nothing more to do than go ahead with the plans and get the building erected. As it is, the result of the commission was a fiasco, or something of a very near resemblance. And now we should like to hear freely-expressed general opinions about the questions on which the members of the Royal Commission disagreed. It appears, from Mr. Plunket's reply to Mr. Shaw Lefevre, that Mr. Pearson does not wish to publish the sketch plans prepared for the proposed buildings at Westminster, there having been an understanding at the outset that the designs should be treated as confidential. The First Commissioner of Works stated that he had no objection to Mr. Pearson's publishing his designs in any way he thought fit. If, then, the publication of the plans would do anything to help forward the now vexed question, it is much to be hoped that Mr. Pearson will consent to their being published at an early date. As the matter stands, everything seems in a most unsatisfactory condition. The public must be bewildered, what with the failure of the Royal Commission and the continual pressing forward in daily papers of "rival" schemes for memorial chapels, from the crypt to the cock-loft of the Abbey. Possibly the only persons at all convinced as to the best course to adopt are architects, who must have a very clear notion that the Refectory site is, on the whole, the most desirable.

Architects, however, have just now perhaps more of a notion of holiday-making than the consideration of reports of Royal Commissions and the other dry-as-dust topics that suffice for the ordinary days of the year. I suppose it is now about "head assistants'" time for getting away, leaving the latter end of the month to principals, the office-boys having long since had their weeks at Margate mixing sand-pies instead of Indian ink, and the pupils—the least independent of this variable and precocious genus at any rate—having followed them at no distant date. May they one and all have derived every possible enjoyment from their outings. In theory any one of architectural tendencies does enjoy his holidays; he also is supposed to do some little sketching and measuring. I have no doubt that there is every foundation of truth in the first. Of the latter I am inclined to be somewhat dubious, and even to venture to hint that many would do better to leave figures, dimensions, and diagrams behind them when they go holiday making, excepting such as, like Sir Gilbert Scott in his "Recollections," they may trace on the yellow sands. There is some gain in letting the mind lie fallow for a season; it is all the more productive when the time comes to resume daily duties.

I recently obtained my own permission to have a day out in the Kentish Weald, and saw one or two old places worth mentioning. Brenchley, south-east of Tunbridge, seems an architectural dead-letter, considering the extraordinary wealth of old architecture—*real* architecture, such as the Weald possesses above other home counties—in this village. It may in later years become better known, as I notice that the new railway to Cranbrook and Goudhurst, now in course of construction, passes near the place. There is a wonderful façade of old Kentish half-timber work, restored, but by no means destroyed. There are also other old buildings of interest and beauty; indeed, there is only one new house in the whole village street. The church is fine, too, the buttresses of the square tower being exceptionally noteworthy for their vast size. I should imagine that the architect was a little bit nervous, fearing continually that the tower was not strong enough, and adding about 6in. in width to the buttresses every day that he set to work on the plans. Worth going to see is the beautiful, homely old house at the corner of the churchyard. It is a forcible example of how little elaboration has to do with architectural and homely effect in domestic work. Staplehurst and Headcorn all will think they know; but perhaps on reflection many will remember that whereas they have, like myself, passed the places on the main line of the S.E.R. scores of times, they have never been in these old Wealden villages and seen their beautiful old houses and churches. Staplehurst church stands well out of the plain when approaching from a distance. It has a glorious old oaken door, with iron hinges hammered into fishes and all sorts of devices. The whole arcade—there is only *one*, as in many Kentish churches—at Staplehurst leans very much on one side. Headcorn Church is grand, if solitary and slightly woebegone in appearance, and is quaintly set down among the old cottages of this pleasing village. GOTH.

On Monday the Earl of Coventry opened a new Cottage Hospital at Bromsgrove. It replaces one built on another site fourteen years ago, and its cost, with furniture, has been about £4,200. The hospital, which has been built upon the pavilion system, has been erected from the designs of Messrs. Cotton and Bidlake, architects, Birmingham, by Messrs. Brazier and Son, contractors, Bromsgrove.

RAILROAD ARCHES.

SEVERAL necessary conditions to be observed in the construction of arches in railway embankments are stated in a paper on the subject by Charles G. Churchill, a member of the Engineers' Club, Philadelphia. Amongst these the author says that large factors of safety may be added to buried arches by simply placing the bank material over the structures in horizontal layers and packing the same. Such layers of earth may be likened to layers of brickwork, which materially support the weight over an opening in a wall. A wedge-like form represents the acting mass of earth or brickwork over the opening, and the weight of this wedge represents the pressure which a supporting beam would have to sustain at the opening. The materials used for the arch should be of uniform hardness. Thus, if brick is the arch sheeting, the cement should be of the same strength as the brick; if the arch is of rubble masonry, the strength of the cement will determine the strength per square foot of the arch sheeting. For a first-class cut stone arch there should be small joints of about ¼in., filled with the best Portland cement mortar; but carefully cut arch stones with joints of over ¼in. are useless, as the strength of cement in this case alone determines the strength of the arch sheeting, and this is generally less than the strength of the stone. Other recommendations are to cover the whole top and crown of arch, especially brick and rubble arches, with a coating of strong cement mortar, so as to turn the water off or to carry it to proper channels, thus to prevent leakage through the arch, and to make the arch assume a parabolic curve, though practically it is made up of circular curves. The author gives sections of the most economical forms of buried arches of 12ft., 16ft., 20ft., and 30ft. spans of brickwork. The parabolic line, being parallel to the line of pressure of the arch, is much more economical and stronger than a full centre arch; in short, to make the latter equally safe it must have a thick sheeting, and be heavier at the springing. Thus, for a 20ft. arch of the parabolic section, 24in. sheeting or thickness is shown, and a thickness of 5ft. 6in. at springing. These facts are of importance to builders of railway arches under high enbankments.

STEEL CEILINGS.

THE application of iron and steel to decorative features in America is largely on the increase. We have not only house fronts and cornices of stamped metal, but enrichments for mouldings and friezes. A scientific contemporary, published in New York, illustrates an improved steel ceiling, showing the use of the Kinnear steel for that purpose, made by Kinnear and Gager, of Columbus, for a Masonic Lodge room at Circleville. The room is 70ft. by 43ft., and the height 24ft. It was built many years ago, and had a plaster ceiling. As this was often falling in pieces, it was decided to put up a Kinnear ceiling. These ceilings are now general, and are decorated. The design of the lodge-room ceiling is broadly treated. There is a bold, panelled border, and the ceiling is divided into panels well broken by corner, ornamental, diamond-shaped squares, with a similar large diamond panel in the centre. The steel ceiling is in favour with the insurance underwriters, who allow a credit of 15 to 20 cents on the rate of insurance effected. This application of steel is at least not so objectionable as many others.

Mr. Henry Hart has formally resigned his appointment as district surveyor of West Kensington. He was originally appointed in 1865.

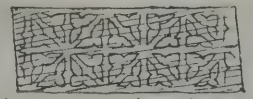
The city of Boston, Mass., has recently established an ordinance regulating the laying out of new streets. Henceforth all new streets are to be laid out in accordance with a plan to be established by a Board of Survey, which also fixes all street lines and grades. By this means comprehensive plans may be carried out, if not all at once, yet with a definite end in view.

The sales noted in the sale book at the Royal Academy have amounted to 234 pictures, sold for £18,400. Of course, this does not represent the total sales of pictures in the Exhibition, but merely those where the seller and purchaser have been brought together through its medium. Of these 234, three exceeded £1,000 in price, thirty-two exceeded £100, twenty-five ranged between £50 and £100, and a hundred and seventy were sold for £50 and under.


Architectural Association Excursion in Shropshire 1891
Reader's House
Ludlow.
Salop.

SKETCHES IN
MUCH WENLOCK:
SHROPSHIRE: —

MARKET HALL:



Verge board & tie beam - left hand Gable.

OLD BUILDINGS - HIGH STREET - SHREWSBURY -

DATE - 1592 - ALL WINDOWS ARE MODERN -

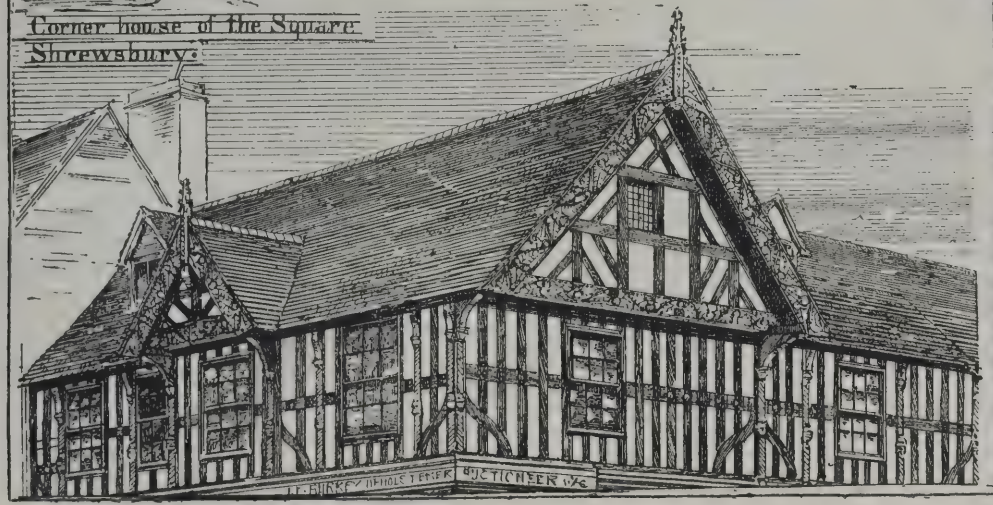


Architectural Association Excursion in Shropshire 1891

GATEHOUSE
MUCH WENLOCK:



Corner house of the Square
Shrewsbury:



SKETCHED BY ED HODKINSON

NOTES ON STRIKING HIGH-CLASS MOULDINGS.

By M. Powis Bale., M.Inst.M.E., &c.

Author of "Woodworking Machinery," "Saw Mills," "A Handbook for Steam Users," &c.

I THINK it will be generally admitted that the production of really high-class mouldings —that require little or no hand-finishing—is the exception and not the rule. This arises from a variety of circumstances, such as (1) bad wood, (2) poorly-constructed machines, (3) bad adjustment of cutters, (4) improper speed, (5) insufficient foundations, &c.

(1) It goes without saying that high-class moulding cannot be produced without good material; we need only remark, therefore, that the wood should be thoroughly sound, and well seasoned.

(2) The construction of the machine is also a very important factor, and it may not be out of place to extend our remarks thereon to some length. The two classes of machines generally used—not including vertical spindle or shaping machines—are: (1) centre-feed machines, (2) overhanging-spindle machines. For light purposes overhanging-spindle machines are extremely handy and useful, but for large and high-class work centre-feed machines are to be preferred, and our remarks on construction will therefore refer chiefly to this class.

CONSTRUCTION OF CENTRE-FEED MOULDING AND PLANING MACHINE.

After a lengthened experience, it has been found that the box or solid framing is the best form to adopt for the main frame of the machine. The reason for this is not far to seek, as in moulding and planing wood very high speeds are necessary, and various strains are set up, and to absorb these and their consequent vibrations, a considerable weight of metal is necessary, and this metal is much more effective when in the form of a single casting than when put together in sections. Box-framing is slightly higher in first cost, but this is more than counterbalanced by its increased strength and resistance to stress, by economy of material in ratio to strength, and by its greater neatness of design. The cutter spindles should be supported by bearings of ample area, and these should, as far as possible, be made adjustable for wear and end play, more especially the bearings, which are subject to considerable belt tension. The question of lubrication must be carefully attended to, and the bearings guarded from dust.

To secure a constant and even feed, and prevent the slipping of the wood, it is important that all the feed gearing be expansively geared up together. If the feed rollers are geared separately, the wood is apt to slip, particularly if difficult to work. In the best class of machines, the intermediate pinions are made of steel, or gunmetal. As a sufficiently long belt may be obtained, and as, at the same time, it economises space, it has been found convenient to place the countershaft working the feed gear within the framing of the machine. This should be fitted with four-speeded cones, so as to give varying speeds of feed of, say, from 10ft. to 60ft. per minute. The countershaft working the cutter spindle should be placed, say, 15ft. away at least, as running belts at short centres is to be condemned from every point of view. The cutter-block and spindle should be made of steel, as they are thus stiffer in work and can be made of somewhat smaller section than with wrought iron. The cutters should be fastened to the blocks by dovetail-headed bolts, sliding in suitable grooves These should be made of best Swedish iron, and be very carefully fitted. Irons should never be fastened by means of studs tapped into the blocks, as the method is both dangerous and uncertain.

A very considerable difference of opinion seems to exist amongst makers as to the best position in the machine in which to place the vertical spindles or side cutters; some fit them at the end of the machine, to act on the wood after it has passed the top and bottom cutters; others put them in the centre of the machine, between these cutters. The writer is in favour of the latter plan, as the wood is then directly under the action of the holding-down apparatus, and there is less liability to its jarring when under the operation of the cutters. The plan of placing the vertical spindles at the end of the machine renders them rather more accessible for adjustment; but, in all cases, holding-down or pressure apparatus should be fitted close up to all the blocks.

It is of the utmost importance that the cutters should bed evenly and well on the block, and, to secure this, knives are sometimes made very slightly concave from the cutting to the back edge, so that when the nuts are tightened they spring slightly, and bear on the whole surface of the block alike. Cutters made slightly thicker at the back than at the cutting edge are preferred, as they are less likely to slip forward from the high speed and centrifugal force set up. It is important that the iron round the slot holes be true, and that all the hollows and smithing marks be ground out, so that the nuts and washers have a perfectly true bed to rest on.

But, given all this, and a good and true block, we sometimes find irons flying, and shifting on their seats. This may arise from the bolts not being tightened enough, or from being tightened too much, this latter being a very fruitful cause. In order to secure the bolts, as he thinks properly, an inexperienced or careless workman is apt to use a powerful wrench, with sometimes a pipe on the end of it, to tighten them up—the thread of the bolt consequently becomes damaged, the pitch being stretched and bulged, and made coarser. One of the reasons why there is sometimes a difficulty in bedding the nuts, is that the threads are often allowed to get dry and filled with grit. Irons may be prevented from slipping by bedding them on several thicknesses of brown paper or thin leather.

In machines where movable blocks are employed, it is of the utmost importance that the spindle holes are perfectly true and fit the spindle tight, and are exactly parallel with the cutter face: this is not altogether an easy matter with long blocks, as they are apt to get slightly oval. When the cutter-block is revolving at a high speed, this will allow it to spring sufficiently to damage the output, and is one of the causes of inefficient working very difficult to detect. Light blocks require balancing as much as heavy. If movable blocks are used, they should in all cases be planed by the makers after being fixed on their spindles.

MAKING AND TEMPERING MOULDING IRONS.

It need hardly be said the steel used for cutters should be of the very highest possible quality, combining in its nature, as far as may be, toughness with hardness. It must be admitted that there is a considerable amount of art in forging and tempering cutters successfully, as owing to the varying amount of carbon contained in different samples of steel, the amount of tempering varies accordingly, and the exact temper necessary can only be ascertained by one or more trials; the folly, therefore, of treating all kinds of steel alike, which is sometimes done by the workman, is at once apparent. It may be taken as a rule that if it is necessary to heat the steel so hot that when it is annealed it appears coarser in the grain than the piece from which it was cut, it may safely be concluded that it is of too low a temper for the required work, and a steel of a higher temper should be selected. A steel cutter, when properly tempered and suited to the work in hand, should always be of a finer grain than the piece from which it was cut.

Moulding irons may be roughed out and ground down to something near the size by means of small profile grindstones or emery wheels, and when filed to the exact profile and tempered before using, a cutting edge should be put on them by means of a slip of Turkey or other good oil-stone. When the irons are of simple form, to avoid softening and rehardening, the steel may be ground to the shape by the series of small grindstones spoken of, the peripheries of which are turned up to suit the rounds and hollows of the mouldings. The author has found Bilston grindstones answer very well.

With the object of preventing the constant change of profile when sharpening moulding irons of the ordinary construction, in which the profile of the moulding is formed on the edge of the steel, and a bevel ground backwards from it, some makers mill the form of the moulding into the face of the cutter itself, as if sharpened to the proper bevel, it thus always retains its true form. This form of profile may be secured for vertical spindles, no matter how badly the cutters are sharpened, by using solid circular cutters. These are made from one piece of steel, in form something like a deep saucer. The periphery of the steel is shaped to the profile of the desired moulding, and has several openings which are sharpened towards the centre, present as many cutting edges to the wood.

In forging or tempering moulding-irons important that they should be heated as ev as possible. If one part of the cutter is th than the other, care must be taken that the part does not heat more rapidly than the re it may be "burnt," and break off at the cu edge whilst in work. In heating cutter tempering, they should be repeatedly t over in the fire, and withdrawn from it nov then. If the cutting edge is heating too rap it should be pushed through the fire into c coals. If there are a number of membe the same moulding, great care should be cised in tempering them as nearly alike as sible, or they will vary in wear, and the p of the moulding be altered accordingly. important in tempering that there be a gr shading of colour. If there is a distinct between the colours towards the edge o cutter, it will probably chip at this line. point to aim at is to have the edge of cutter tolerably hard, and this hardness t gradually reduced the further you go fro cutting-edge, and the softer metal at the will be found to strengthen and support it.

The process of tempering should be gra as the steel becomes toughened and less liat fracture by slow heating and gradual softe than if the process be performed abru When the proper heat has been reached, the should be removed from the fire and not all to "soak" with the blast off as is somet done. Bear in mind, in forging, weldin tempering steel tools, that an excess of over what is absolutely necessary is detrime as it opens and makes the grain of the coarse. If a tough temper is required, the coo or letting down, should be as slow as poss The right temper colour varies with the stee the hardness required. Templeton gives following degrees of heat:—Chipping chi planing irons, hatchets, and other percussive 500° to 520°, light straw colour, a brown yell yellow slightly tinged with purple; 530°, purple. As the colours appear and ch slowly ample time is afforded to see whe exact shade of colour has arrived, when the c should be at once dipped and withdrawn se times; as this has a greater tendency to tou the steel than if it is plunged into water, and allowed to remain until quite col number of more or less reliable mixture used for tempering. We have found the fol ing answer very well:—Take 4 parts of powc yellow rosin and 2 parts of train oil, and fully mix them, and add 1 part of heated ta The object to be hardened is dipped in this and allowed to remain in it till quite cold. W out having previously cleaned it, the steel is a put into the fire, and then cooled in boiled w in the usual way.

SPEED OF CUTTERS.

In turning out high-class mouldings, question of the speed of cutters is of moment*; but exigencies of space prever here going into the question at length. thoroughly well constructed and equi machine, a speed of 4,000 revs. per minute be taken as a standard.

BALANCING THE CUTTERS.

Another matter of the extremest import in securing highly-finished mouldings is the balancing of the cutters. These should not be of same exact weight and overhang, bu cutters must be made to agree in their c sponding members to the greatest possible ni The importance of this will be readily recog when we consider the high velocity at w they have to run; consequently any inequi is enormously multiplied by the centrifugal set up, the result being transferred to the in the shape of jars and markings. When e cutters are put on, they should be put exact balance and kept so. In working elab mouldings, it is difficult to keep both irons a and one plan often pursued by the operator use an iron for each member of the mould and to balance the irons with beams and sc and when the iron projects, say, 1½in. to put rectangular washer. In working vertical sp machines, some operators will use one only, with a blank on the other side of the to balance.

* See "Saw-Mills: their Arrangement and Ma ment," by M. Powis Bale.

s already mentioned, in accurately balancing ers, not only should their specific weights e—which is a matter of little difficulty, as it be determined with a common pair of scales—the weights of the cutters should agree in r corresponding parts. This cannot be ascered accurately without the aid of a proporal cutter balancing machine, and several of e have now been introduced with very satisory results. In the best of these machines cutters can be tried one against another in y position, and if any excess of weight ears in any of them at any point in the backs, its, or edges, it can be detected and remedied.

DRIVING-BELTS.

ll driving-pulleys should be of ample width the power they have to transmit without ining the belt, and, therefore, cutting out the rings. Wide single belts are preferable to ble, and the best leather to other material. s important that the driving-belts are kept as ble as possible. This is not a very easy tter in a saw-mill, owing to the very fine dust stantly floating about, and filling up the pores the leather. A mixture of mutton-fat and swax in equal parts will be found a capital ssing, and will not injure the belt. An apation of tanner's dubbin for leather, and of seed-oil varnish for cotton belts, can also be ommended. Castor-oil is also an excellent ssing for leather, and, at the same time, it ders it vermin-proof. It should be mixed, , half and half, with tallow or oil. For preving or recovering leather belts from mould, roligneous acid may be used. The belts should thoroughly stretched and carefully made. mented joints are to be preferred to others, as y run smoother over the pulleys.

CARPENTRY AND JOINERY.—XXXIX.

DOOR-FINISHING (*continued.*)

IN the last article, a somewhat elaborate *architrave block* was described; in this, a still re complicated one will be dealt with. Before ssing on to sketch additional features of doorishing in the shape of entablatures and pedients. It will be noted that the two principal ints of difference between the block described this article and that treated of in the last, e—first, the corner of the block nearest the or is rounded, instead of rectangular or *square;* d second, the moulding on the lower face of e skirting is continued round the architrave ock until it terminates, by being *scribed* into e scotia adjoining the bead on the inner (that ext the door) edge of the architrave.

Fig. 266 gives a plan of the architrave block, ith as few lines as possible, so as to avoid nfusion by overcrowding.

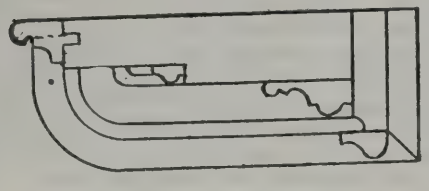
Let it be understood that this particular nishing was composed of pitch pine and teak, olished. The mouldings were all of teak, hilst the architrave plate and capping were itch pine; and this determined the composition f the block. The block itself was pitch pine, correspond with the *plate*, whilst, as before ated of the architrave, the mouldings around nd upon the base block were of *teak*. It will be ecessary, in order that the reader may have this lock before his mind's eye, to give its elevaion; and it will not cause any great difficulty to how it *broken*, as the block was $10\frac{3}{4}$in. high and he breaks occur in the plain surface.

The height, $10\frac{3}{4}$in., is to be understood as orming at that part a resting-place for the rchitrave-moulding proper, so that what is hown above that measurement is the return of he architrave upon itself and along the block.

It is a sectional elevation which is given, as it will be understood that the front elevation would n general be similar to Fig. 262—that is, the other architrave with the *square corner*.

Now when the plan is measured, it is found hat it requires a block 8in. wide and $3\frac{1}{8}$in. thick, and, of course, at least $10\frac{3}{4}$in. long; but allow, say, $\frac{1}{2}$in. at least extra for scribing to the floor. The method adopted to work this block was—having obtained the piece of the required size, and then planed it up to the finished size, the patterns were got out by which to work it, one pattern being that of the plan of the full size of the block with its rounded corner, and this served as its plan outline up to the ogee moulding which is continued round the block, and shown in elevation; its outline is also shown in plan in front of the capping of the architrave, but it is not seen its full thickness there, as it is *housed* fully an $\frac{1}{8}$in. into the block, which housing is shown in elevation. Above this ogee moulding the size of the block was reduced, and the pattern for it would follow the line inside of, and parallel to the front line of ogee moulding; or, in other words, would follow the line of the back of the ogee moulding, as seen

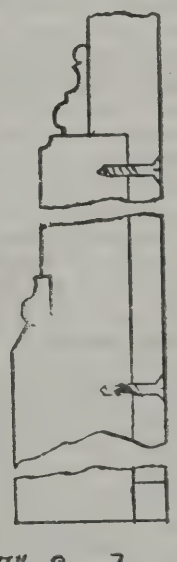
Fig 266



3" Scale

in the plan, which line, be it observed, takes no notice of the *housing* of that moulding, and which is shown in elevation alone. No further reduction takes place in the size of the block, so that a pattern got out to this will serve to work the upper portion of the block. One other matter in the working of the block: it requires to be trenched, so as to let the ogee moulding in $\frac{1}{8}$in. fully, as previously stated. If the joiner who is working the block has a *slide-rule*, just draws the slide out a full $\frac{1}{8}$in., and uses that as a depth guage to sink the trenching by, it will serve for a sufficient guide. He now requires a pattern to work the ogee moulding to, the lines of which he will obtain by putting upon the plan a line in the middle of the scotia, and parallel with the outer face of the block; then a pattern got out to a fraction within the outer face of the bottom portion of the block and the line just drawn, as above described—that is, a pattern that will fill in between these two lines

Fig 267



3" Scale

will just suit for the plan or pattern of the ogee moulding, and its thickness can be obtained from the *sectional elevation* (Fig. 267).

A section or piece cut off the end of the straight moulding, which it is presumed has been already wrought at the machine, will serve to mark the ends in order to guide in working the piece of moulding for putting round the block, so that it will fit in the trench cut for it.

It is to be noticed that a small chamfer occurs under the ogee moulding; this is seen in elevation. The scotia which occurs on the capping is continued along the block, and is shown in plan and elevation.

Of course, on the block it is carefully wrought what is termed *across the grain*, and is seen abutting against the plain sunk face of the architrave plate.

Carefully note the dotted line parallel with the back of the architrave plate, and extending inwards from the quirk of the bead. This shows a small *rebate* taken out of the back of the block.

The scotia alongside the bead, which is seen along the edge of the architrave plate, and is tongued into it, is taken away from where the ogee moulding will be scribed into it downwards, so as to fit this rebate, and one or two small screws are put in from the back, so as to fasten it tightly to the block. Before putting the screws in permanently, glue the moulding opposite the rebate. The tongue and groove, as also the remaining portion of the edges of the architrave plate and moulded slip, are glued, and a few screws put in from the back of the plate into the slip to hold it firmly to; these screws are put in *anglewise*, and a little taken out for the head, so that no obstruction will prevent the architrave bedding itself properly against the grounds, &c. The ogee moulding which is housed into the block has to be wrought by hand, as it would hardly be worth while to attempt it with the machine; but if it is tried at a machine it would be the "vertical spindle," and the piece should be wrought to the convex curve, then moulded and cut out at the "band-saw" to the concave curve, as also the straight portion connected; it is just as well to have sufficient of the straight attached to allow of its being mitred across the edge of the block. The mitre is shown in the plan, and the return piece is continued as shown, so as to be fair with the back of the block. In fixing the skirting, the corresponding moulding on the skirting is scribed to fit.

The particular skirting used in this case will probably be given among illustrations of skirtings, as it is a good example of a "double-faced" and somewhat heavily-moulded plinth. Two other portions connected with this block remain to be touched upon. The architrave moulding proper has to be wrought by hand too; the curved end is rather quick for any machine in use in joiners's shops, so far as is known to the writer, so a little pattern of the *plan* of the moulding is got out, the lines which bound it are seen in plan, and are those which contain the section of the moulding, and this section gives the thickness or depth of timber required to get it out. There should be no difficulty in working this moulding, providing the ends have been marked carefully with the section.

It is taken for granted that the piece to be moulded has been wrought neatly to the pattern got out as above. The sectional elevation shows the true position of the finished moulding, and, therefore, the way to place it on the piece in order to mark it for working. A little extra length should be allowed on both ends in case of mishap and for fitting, the straight end being mitred to suit the vertical moulding of the architrave, and the rounded end abutting against the sunk face of the architrave. Let it be noted that the inner curve on the back-side of the moulding requires to be accurately fitted to the rounded edge of the piece upon which the small ogee rests.

In the description of the architrave belonging to the former block, as shown in Fig. 262, the small moulding had a wrought *stop;* but in this case the horizontal piece of this moulding (the plan of which is seen) has its end rounded and mitres with the vertical moulding at the other end. A small piece with the *grain* to match the architrave plate has to be fitted, to rest the *return* of the small ogee upon; it reaches down to the block.

This is the second point to be noted, and concerns this *bedding* piece and the return, or horizontal portion, of the small ogee.

The bedding piece is glued and needle-pointed to, the needles are put in where they will be covered by the architrave moulding, which is also glued and needled to, and the small ogee is similarly dealt with.

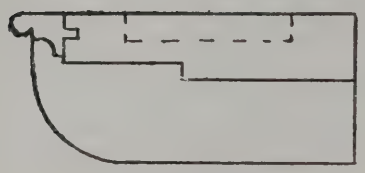
The capping of the architrave is scribed to fit the scotia on the base block in a similar manner to the preceding case.

And now the method of attaching the block and architrave plate together remains to be stated, although this was slightly, if not sufficiently, dealt with in Article 29.

Fig. 268 gives a bare outline in plan, but sufficient for the description of the process. The

dotted lines show what is left on the architrave plate, and, as a matter of course, what is grooved out of the back of the block. For ease of working this is taken out right through the length of the block, and can be done either with a *grooving iron*, or a saw at the "circular saw and bench," providing the saw can be raised or lowered; of course, if that cannot be done, a packing piece of the required thickness can be laid on the saw table, so as that the saw shall be just sufficiently above this piece, as is required for the depth of the groove. This packing piece can be kept from pushing away by nailing two pieces to its underside at the exact length of the table. The portion of the architrave plate to fit into this

Fig 268



3" Scale

groove need not reach to the bottom of the block, as 1in. or 2in. may be saved in this way; but the bead and scotia grooved into the edge of the plate must extend to the floor. A good horizontal joint should be made between the block and the plate, and when all has been accurately fitted, the plate should be screwed to the base-block from the back-side, the heads of the screws being countersunk for. The front of the block must be parallel with the face of the architrave plate, as any departure from it would be readily noticed. The architraves are fitted up in the ordinary way apart from the peculiarities of the block, so that no further description is considered necessary. It will be obvious to every workman that blocks require to be paired (matched); but all the patterns are capable of being reversed, serving for either right-hand or left, according to which side is kept up. It is hoped that no difficulty will present itself, as this description is considered very full.

MR. JOSEPH NEWTON AND THE FOREMEN ENGINEERS.

MR. JOSEPH NEWTON, we regret to hear, has recently met with unexpected ingratitude at the hands of the officers of the London Association of Foremen Engineers and Draughtsmen. All who know the history of that society are aware that to Mr. Newton it owes its very existence, as well as its prosperity; and that, in fact, he converted it from a public-house gathering of foremen with "churchwarden" pipe accompaniments, into a delightful assemblage of engineers, over whom Lord Granville felt it an honour to preside! This in truth was the work of fully one-third of Mr. Newton's lifetime, for he spared himself no exertions, night nor day, to accomplish the object he had in view. It was through him that the Widows' and Orphans' and the Superannuation Funds of the society came into useful being, and are in active practice now. He also established, and for many years edited, a journal of the institution, *The Foreman Engineer*. This, however, failed through the apathy of the association foremen generally, and the forgetfulness of some to pay their subscriptions. Its failure saddled Mr. Newton with a heavy burden of debt, with a portion of which he is still encumbered, and which keeps him comparatively a poor man. These things are all well known to the officers of the association, and yet when he appeals to them for the small superannuation allowance—£12 per annum—they "fail to see" that he has any claim whatever as a "necessitous and old" member, and refuse to accede to his application! Such treatment certainly does not reflect credit upon the association.

Building Intelligence.

CRAIGELLACHIE, N.B.—A new distillery has just been built at Craigellachie-on-Speyside from plans by Mr. Charles C. Doig, of Elgin. The works are capable of manufacturing 3,000 gallons of spirits weekly, and include a warehouse, three stories in height and measuring 125ft. by 35ft., stillhouse, charge house, and offices. The chimney stack is 102ft. in height. The contractors were: Mason and brickwork, D. Forsyth, Elgin; carpenter work, A. and R. Dunbar, Craigellachie; plumber work, John Hunter, Elgin; concrete work, Scott and Sellar, Aberdeen; plaster work, Alex. Geddes, Elgin; slater work, John Wilson, Duff. Ironwork, Blaikie Bros., Aberdeen; James Abernethy and Co., Aberdeen; George Soutar, Elgin. Cast iron pipes, Laidlaw and Son, Glasgow; copper work, Robert Willison and Son, Alloa; painter and glazier works, J. Farquharson, Dufftown.

DENSTONE.—The dedication festival in connection with St. Chad's College, Denstone, and the celebration of the completion of the college buildings took place on Wednesday week. The foundation-stone of the new hall was laid in 1888. The hall itself forms the northern side, and the large schoolroom, with its wings, is the connecting link between them. The structure is in two stories, of which the hall proper forms the upper story. The inside dimensions of the hall are 93ft. long, by 30ft. wide, with a height of 18ft. to the cornice, and 35ft. to the apex of the wooden ceiling under the timbers. The hall is lighted on the south side by five three-light windows, and smaller lights in the eastern gable. The exterior is in unison with the rest of the college buildings, and is in the Early Pointed style. The work has been carried out from the designs of Messrs. Carpenter and Ingelow by Mr. Bentley, of Waltham Abbey. The cost of the work has been about £70,000.

EDINBURGH.—The work of constructing the Chambers Memorial Chapel in St. Giles's Cathedral has now reached an advanced stage in its completion. The chapel has been formed out of a building, till recently a vestry, which was erected against the north-east side of the transept, probably a short time after the Reformation. This building has now been thrown into the cathedral by a wide Gothic arch rising into the vaulting of the north aisle. The new groined stone ceiling springs from the four corners of the chapel and meets in the centre, with massive ribs, in a fine ancient carved boss, belonging to some portion of the old church of St. Giles. Corner columns with covered and moulded capitals support the ceiling. The removal of the plaster which covered the old east wall of the transept revealed the remains of a very fine Perpendicular window, sadly mutilated and broken. There were also discovered above the window, on the outside, the remains of the carved cornice that ran beneath the parapet, and many loose stones with carving, including a Norman capital. It is well known that there was a Norman porch at one time on the north side of the cathedral, unfortunately taken down about the end of last century. A careful drawing of it, however, which was made and can be found in Sir Daniel Wilson's book, reveals the fact that the capital found during the excavations clearly did not belong to this doorway. It is of quite a different, probably an earlier, type, and furnishes conclusive evidence that a church stood on the site in the 12th, or certainly early in the 13th, century. Another find, it will be remembered, was the arm bone, which caused a good deal of controversy. The construction of the chapel has been the means of greatly improving the lighting of this portion of the cathedral. The architects for the work are Messrs. M'Gibbon and Ross, Frederick-street, Edinburgh.

GATESHEAD.—Some 15 years ago the late Mr. Edward Joicey, of Whinney House, bought an iron church in London and presented it to the then Rector of Gateshead, who had it erected at the foot of the Windmill Hills. Service has ever since been conducted in the building. Lately, however, the iron casing has become so worn, and the whole building has got into such a condition, that it has become necessary to substitute a permanent church for it. Arrangements were started for the erection of a permanent building on the site occupied by the iron church, but it has been decided to erect the new building at the junction of Peterborough-street and Alexandra-road. The church will be known by the name of St. Mary's District Church of St. Columba. The architect of the new church is Mr. Stephen Piper, M.S.A., County Chambers, Newcastle, and the building will consist of nave, transepts, chancel, chancel aisle, organ chamber, and vestry, with heating-chamber underneath. The aisles are arranged so as to admit of future extension, but at first they will be used as passages. In the interior the walls will be plastered and relieved by an arcade of red brick, giving a striking and pleasing effect to the whole. The external walls will be of snecked rubble, with chiselled stone dressings. The roofs will be slated, and the windows, with the exception of the east and west, will have simple tracery with lead glazing. The style of architecture is a simple treatment of the 15th century, and, when completed, the church will provide sitting accommodation for about 400 persons. Mr. Jas. Joicey, M.P., will lay the foundation-stone at seven o'clock in the evening of the 30th inst.

LEAMINGTON.—The memorial stone of a school to be erected in connection with Spencer-street Congregational Chapel was laid on Thursday, the 23rd ult. The building, which will be situated on the west side of the chapel, will consist of a Sunday-school, with a lecture-room 47ft. by 25ft. 6in., and an infants' classroom 30ft. by 25ft. 6in., with lobby, cloakroom, and lavatories attached. The whole of the building will be in Kenilworth bricks, with Bath-stone dressings. Ventilation will be provided by means of inlet tubes and Buchan's exhaust ventilators fixed in the roof. Several alterations and improvements are also to be carried out in the adjoining chapel. The building will be enlarged at the north end by the formation of a chamber to contain the organ and choir. This will be lighted by semicircular-headed windows corresponding with the Classic style of the chapel. The organ will be removed from the south gallery into this chamber, and a new organ-case will be provided. On either side will be vestries for the minister, deacons, and choir, the present lecture-room being utilised for that purpose. The whole of the present cast-iron windows in the walls will be removed, and replaced by new windows of improved design, with tracery heads, and also filled with cathedral glass. The whole of the present pews on the ground floor will be cleared out, and their places taken by pitch-pine benches of more modern design. The lobbies at the south end are to be renovated and altered, with new staircases to the galleries, and pitch-pine doors with glazed upper panels. The architect is Mr. Victor Scruton, of 7, Waterloo-street, Birmingham, and the contractor Mr. John Fell, of Leamington.

LEIGH WOODS.—The foundation stone of St. Mary's Church, Leigh Woods, a hamlet of Long Ashton, was laid on Saturday. The church will consist of nave and chancel, and will accommodate 270 people. There will be an organ chamber and vestry, and beneath the latter will be the chamber for the heating apparatus. At the south-western angle of the nave there will be a tower, with gabled belfry over it, and this will be covered with oak shingles, will have oak barge boards, and be surmounted by an oak flèche. An oak porch adjoining the tower will form the principal entrance to the building. There will be a baptistery projecting from the western wall of the church. The walls will be of red Pennant stone both outside and inside, with Bath stone dressings. The windows will be of simple tracery, except the west window of the nave. The nave roof, of pitch-pine, will have a clerestory of oak dormer windows, with carved barge-boards. The roof of the nave is of open construction, and that to the chancel will be boarded and have moulded panels and carved leaves at the intersections. The east end of the chancel will be semi-octagonal in form. Mr. J. Medland, of London, is the architect, and Mr. G. Wilkins, of Bristol, the builder.

The death is announced of Léon Pelouze, one of the best of French landscape painters. He commenced life as a commercial traveller, and only took to painting at twenty-eight years of age. He was entirely self-taught.

A petty sessional court, with cells and residences for police, is about to be built adjoining the police station at King's Heath, near Birmingham, for the Worcestershire County Council, from plans by Mr. Henry Rowe, of Worcester, the county surveyor.

Engineering Notes.

The Andoversford and Cirencester Railway.—The new line from Andoversford to Cirencester was opened for passenger traffic on Saturday. Although its total length is only a little more than 14 miles, the Midland Railway Company, by using this line, will secure a route more than 40 miles shorter from Cheltenham, the north and west, to the South Coast. The line between Swindon and Andover was constructed some ten years ago; the continuation of the line from Swindon to Cirencester was opened about eight years ago, and the branch now constructed from Cirencester to Andoversford completes the entire system. Much of the work was of a heavy character. The cuttings are almost all of a stony nature, and in some places beds of hard rock were met with. The engineer was Mr. J. R. Shopland, C.E., and the contractor Mr. Charles Braddock.

Carville, Tyneside.—On Saturday, a new passenger station, named Carville, was opened on the riverside line at Wallsend. The contract for carrying out the work, which embraced both the passenger and goods station, was placed in the hands of Messrs. J. and W. Lowry, of Newcastle, Mr. Bell, the company's architect, having prepared the design for the structure; the length of the frontage to Hadrian-road is about 160ft., the entrance being by an arched portico of dressed freestone. The outer walls are of red brickwork with freestone dressings, the interior walls being inlaid with enamelled brickwork. The offices and waiting-rooms are on the north side of the line, and access to the south side is obtained by a subway, also faced with enamelled brickwork. The booking hall, which is in the centre of the building, is surmounted by a clock tower, the general waiting-room forming a projecting wing on one side, and the ladies' room and lavatories on the other. Between these wings a verandah, having plate-glass roof and front, extends the entire length of the building. The platforms, which have been laid with concrete, are exceptionally wide, and extend over a distance of about 460ft.

CHIPS.

The Earl of Stamford laid, on Wednesday week, the foundation-stone of the new chapel at Bradfield College, Berks. The chapel is being added at a cost of £3,800.

Building operations will be at once commenced in connection with the Priory of the Benedictine Order at Edge Hill, Lancs. The architects of St. Anne's are Messrs. Pugin and Pugin.

The new railways through South Clare are making steady progress. A line is being made connecting Kilrush, Kilkee, and Milltown Malbay. Messrs. Griffin, Gelston, and Gray are the engineers, and Mr. W. Martin Murphy, M.P., of Dublin and Bantry, is the contractor.

The honorary degree of Doctor of Laws was conferred by Edinburgh University on Monday on Col. Sir Colin C. Scott Moncrieff, of the Royal Engineers, for his services to India as chief officer of the irrigation works on the Nile.

Litigation is threatened against the corporation of York by Mr. Bottoms, the late contractor for the sewerage works now in progress, for stopping him in the execution of contract for the works. The claim is for loss of profit, detention of plant, damage to trade and reputation, &c., and the damages are laid at over £10,000.

The name of Mr. John Edward Wright, architect and surveyor, of Wilson-Patten-street, Warrington, has been added to the commission of the peace for that borough.

The commencement has just been made of a large board school, which the Benwell School Board is building at South Benwell. The school is planned to accommodate 1,472 children, and is also provided with spacious cooking room, fitted up with all the latest improvements. A large marching corridor has been provided for the infants. The floors are carried on built girders and arches, and covered with wood-block flooring. A handsome suite of offices is provided for the board and clerk to the board, also a caretaker's house. The total length of the two main frontages will be 342ft. long and two stories high. The building will be of stone, and will cost £13,000, excluding land and furniture. The plans were chosen in a limited competition. The architect is Mr. Jas. W. Thompson, of 55, Pilgrim-street, Newcastle-on-Tyne. Mr. Dodds is clerk of works, and Messrs. J. and W. Common are the contractors.

TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the Building News, 332, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

Cheques and Post-office Orders to be made payable to J. Passmore Edwards.

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The charge for advertisements for "Situations Vacant" or "Situations Wanted" is One Shilling for Twenty-four Words, and Sixpence for every eight words after. *All Situation Advertisements must be prepaid.*

Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page advertisements and alterations in serial advertisements must reach the office by Tuesday Morning to secure insertion.

NOTICE.

Bound volumes should be ordered early (price Twelve Shillings each), as only a limited number are done up. A few bound volumes of Vols. XLI., XLIX., L., LI., LIII., LIV., LVI., LVII. LVIII., and LIX. may still be had, price Twelve Shillings; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

Received.—J. Palmer (Bristol).—E. and S. Co.—Talbot.—W. J. M.—F. B. Co.—Justitia.—G. S. T.

Correspondence.

GREEN v. ARCHER.

To the Editor of the Building News.

Sir,—In the last issue of the R.I.B.A. *Journal* the following paragraph, somewhat mysteriously inspired, finds a place, which I extract verbatim:—"The attention of the Council having been called to the case of 'Green *v.* Archer,' reported in the R.I.B.A. *Journal* (p. 359 *ante*), they have formally declared that in cases of partnership between architects it is neither proper nor professional for one partner to claim, except with the expressed concurrence of the other, the entire credit of a design executed by the firm." This is extracted from the R.I.B.A. *Journal*, but as I may be individually *in nubibus* upon the subject, not having followed very closely of late either the R.I.B.A. or other professional journals, I feel somewhat anxious to know whether this excerpt is the mode or channel of communication which the Council have adopted to communicate their formal pronouncement upon this question to the profession, or whether we are to look for another. Personally, I have seen no other, and was somewhat astonished, on the appearance of the paragraph in question, to discover that sufficient pressure had been brought to bear upon the Council to compel it to deliver itself of this magisterial dictum. However, all things come to those who wait, and probably in the course of time members of the Institute will be amply satisfied with the reception of another R.I.B.A. encyclical embodying this very formal pronouncement, with the gratifying information conveyed on the cover that copies can be had on application at No. 9, Conduit-street, on payment of the sum of 6d. each, and, like other encyclicals issued by the R.I.B.A. which cost three farthings to produce, and which are tendered to members of the profession for *sixpence* each, will be very much in request. But apart from the financial aspect of the question, which at best is a sorry one, what about the decision itself? Doubtlessly the Council sat as judge and jury upon this important question; but how was the decision arrived at, upon what basis from either a professional, ethical, or commercial standpoint of view is it founded? One can sympathise with the Council of the R.I.B.A. being empanelled for many days over this *vexata quæstio*, but the profession desires to be made acquainted fully with the details of the case, the nature of the evidence tendered, and to be supplied with something more than the rag of a document by which the information has been so oracularly communicated. Questions of partnership, like questions of party-walls, are all very well in their way, and although, like ancient lights, they supply us with many evil bones of contention, there is not much meat extracted from them, but a fund of useful information when our analogical perceptive faculties have free and full play. Generally considered, party-walls may vary in the characteristics without limit; but fundamentally considered they are subject to such generic distinctions as to enable one to discern in which category each may respectively be placed. Everybody is well acquainted with that species of party-wall which belongs to nobody, nobody can produce a title to it, not even the adjoining owner, no boundaries having been delineated on the title deeds. In such a case the adjoining owners enjoy the use of the wall in common, neither of them being at liberty to sell, raise, vary, alter, dispose, or otherwise alienate the other's interest in it. Their legal right is defined as an undivided moiety, and *both* possess the right of the user of the wall as a whole and in its entirety. Such a position, it must be avowed, is unique. And while they enjoy the privileges they equitably share the responsibilities, as might be reasonably supposed.

I take it that no one would dream of asking as to *who* designed the Victoria Law Courts at Birmingham, such a question being impertinently inappropriate, and would display an overwhelming density upon the laws appertaining to architectural partnerships. There is no question as to who undertakes the responsibilities inseparable from such an undertaking, each of the conjoint architects being held individually responsible for the success of the building in its entirety; and as their partnership carries with it an undivided moiety in the share of the responsibilities entailed, it inevitably carries with it an undivided moiety in the share of all privileges and architectural credit which may accrue from the success of the undertaking; that is to say that their respective share in the success of the undertaking consists of an undivided moiety in which each has a right and privilege to the whole.

In the case of an architectural partnership such as that of Messrs. Archer and Green, which has been established of old, the interest of either party in the credit of the designs carried into execution consists, of course, of an undivided moiety, *each* enjoying the privilege of the whole; but if they are to be called upon to take up the illogical position assumed by the Institute, the element of unlimited discord is to be introduced and let loose. If a partner in a partnership, proceeding upon the lines laid down by the R.I.B.A., cannot, save with the expressed concurrence of the other, claim the credit of a design in its entirety, he must, perforce, content himself with the credit of a part. Now, the question for the R.I.B.A. to solve is, *which part?*

—I am, &c.,
Chas. R. Guy Hall.
13, St. Alban's-road, Kensington, W.

VERTICAL SHEARING STRESS.

Sir,—Will you allow me, through your pages, to correct the prevalent error of supposing that the vertical shearing stress at the centre of a beam carrying either a central or distributed load is nil?

Let us first examine shear, and the conditions under which it can take place.

Shear is the result of *two* forces opposing each other on *opposite* sides of a plane—otherwise it would be compression; such forces are not necessarily in contact with the plane. They may be transferred to it; but the actual shear must take place about a plane. The forces must be opposite in direction and equal in

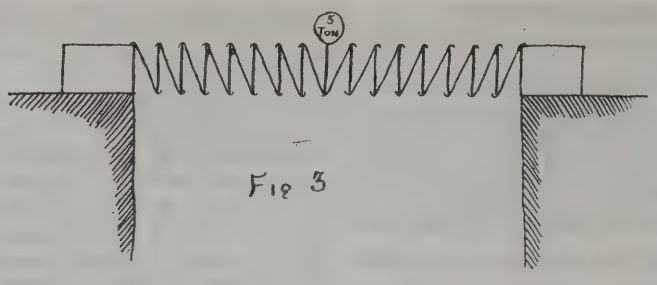


Fig 3

magnitude; if not equal, the whole operation would move in the direction of the greater. Shear must be either single or double; single = half the total load, double = the load. And, lastly, vertical shear can only treat of vertical

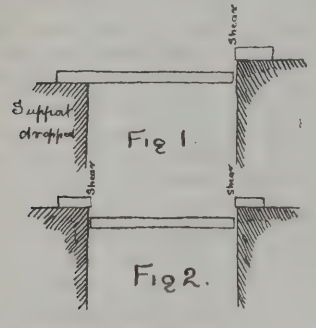


Fig 1.

Fig 2.

forces, and be brought into operation under one of the following conditions: Either one support must give way, as in Fig 1 (this gives single shear); or both supports remain and the beam pass between, as in Fig. 2 (this gives double shear). If the beams were rigidly fixed to the supports, single or double shear may take place at any point or points within it; this is highly improbable in practice, but may be considered in theory. If these points are correct, the principle of using the reactions at the supports obtained by taking moments around each is wrong, because none but *vertical* forces can be considered. Some authorities give the following rule of obtaining the vertical shearing stress at any point—i.e., represent the upward and downward forces by opposite algebraic signs, and the total on either side (not both) of a section gives the required stress. This also is wrong, because you must have forces on *both* sides of a plane to produce shear, and these must be equal, whereas the above mentioned rule would give different results on the alternate sides of the same plane (*primâ facie* wrong).

However, I will give my theory, which is that a beam supported at end may for all purposes of vertical shear be considered as so many vertical planes, bound together by natural cohesion; for experiment we may break this natural cohesion by separating the planes, and supply its place with cords, see Fig. 3. The vertical lines show planes which in practice would be in contact, and the sloping lines show cords supporting the same; in practice these would be replaced by natural cohesion. It will be seen that each plane bears $2\frac{1}{2}$ tons (this would be true, however close the planes were together), and that the supports must each offer a reaction equal to this. We also see that, to shear at the centre, the load must *split* and give us a shear of $2\frac{1}{2}$ tons; but this is evidently the same as would be given at any point between the centre and reactions, therefore the tendency to shear remains constant throughout the beam, and does not converge to nil at the centre. Practically no load would divide itself; therefore the central plane (or planes) would be supported at each side (or outer sides), which would equal two single shears, or 5 tons, for the double shear. A large-scale drawing on the principle of Fig. 3 will show that a beam, no matter how loaded, will give a *single vertical shear* at any point equal to half the total load. A diagram showing this very clearly may be prepared by using different colours to show the different cords which support each load.—I am, &c.,

William C. Bolt,
Royal Engineer Establishment.

The Theatre Royal at Newcastle-on-Tyne was reopened on Monday, after having been redecorated and altered, from designs by Mr. W. Lister Newcombe, of that city.

Intercommunication.

QUESTIONS.

[10597.]—**Mathematical Tiles**—Can any of our readers favour us with the address of the present makers, if any, of buff mathematical tiles? These were used largely on East Kent mansions about a century ago, and we are wishing to match them.—Builders.

[10598.]—**Hire of Scaffolding.**—Will any of your many readers kindly give me some information in reference to the following? I have been letting a quantity of the above, such as poles, boards, cords, ladders, crabs, &c. I should be glad to know the customary way of charging for the same.—A Subscriber.

REPLIES.

[10583.]—**Sketching Tour.**—To Vernon Crompton.—Thank you very much for your reply to my query in the Building News *re* sketching tour. It is just what I require. I shall be glad to receive any information, if it is not giving you too much trouble. I prefer plenty of walking, and hope to drop across some of the old posting inns.—John B. Mason, 9, Mill Hill-road, Derby.

[10586.]—**Damp Rot.**—There is no effectual remedy for this but by arching over in half-brick in cement or concrete on iron girders and relaying the tiles. These should never be laid on timber.—Jas. Pulham.

[10587.]—**Damp.**—The damp through outside wall cannot be stopped by stripping off the plastering or anything inside. It must be done on the outside by well cementing; but if it rises from the wet ground, nothing but a damp-proof course will stop it, and this is a very expensive work.—Jas. Pulham.

PARLIAMENTARY NOTES.

The Chantrey Bequest.—Mr. De Lisle asked the Chancellor of the Exchequer on Monday whether the new buildings proposed to be added to the South Kensington Museum included "suitable accommodation for the pictures of the Chantrey bequest; what was the number of pictures already purchased under the terms of the Chantrey bequest, and their estimated approximate value: and whether, in case the estimated value of the pictures was greater than the estimated cost of providing suitable accommodation, Her Majesty's Government would take steps at once to carry out the terms of the Chantrey bequest, with the view to acquire a full title to the possession of the pictures as the property of the nation."—The Chancellor of the Exchequer: No special provision has been made in the plans of the new buildings to be added to the South Kensington Museum for the Chantrey bequest pictures; but the additional space which will be at the disposal of the Science and Art Department will enable them, if the pictures remain with them, to hang them to better advantage. Fifty-four pictures and seven works of sculpture have been purchased under the terms of the Chantrey bequest, at a total cost of £39,245. The subject of the last part of the hon. member's question must be considered in connection with the proposed British Art Gallery, and I cannot at present give any undertaking with reference to it.

Westminster Abbey.—Mr. Shaw Lefevre asked the First Commissioner of Works whether he would lay before the House the designs which Mr. Pearson, R.A., prepared for the Royal Commission on Westminster Abbey for a monumental chapel on the site of the houses in Old Palace-yard, and also the evidence which Mr. Pearson gave in support of them; so that a full comparison might be made between this scheme and that for a chapel on the refectory site. Mr. Plunket replied that Mr. Pearson's designs were prepared by him for the Royal Commission on Westminster Abbey on the understanding that they should be treated as confidential. The evidence referred to in the question was given long after the general evidence had been closed, and when the Commissioners were actually engaged in considering their final report. In these circumstances, the designs could not be exhibited in the report. He had not the smallest objection to Mr. Pearson publishing his designs—which were merely sketch designs—in any way he might think fit. The only design in relation to the refectory site was one suggesting a possible treatment of the interior.

The governors of the Radcliffe Infirmary, Oxford, have decided to erect a new male ward, and to rearrange the old block for administrative purposes.

LEGAL INTELLIGENCE.

Appeal Court under the Metropolitan Building Acts.—The Tribunal of Appeal in cases under the Metropolitan Building Acts, organised under the London County Council General Powers Act of last year, held its first sitting at Spring Gardens on Friday. Mr. Arthur Cates, V.P.R.I.B.A., the referee nominated by the Royal Institute of British Architects, occupied the chair, the other referees being Mr. R. C. Driver (nominated by the Surveyors' Institution, of which society he is ex-president), and Mr. John Hutton, chairman of the Building Acts Committee, L.C.C., representing the latter body. The court is formed, it will be remembered, for the purpose of affording appeals from the decision of the superintending architect to the County Council as to lines of building frontage.——In the first case heard, Mr. G. C. Barratt, the owner of No. 147, Stroud Green-road, appealed against a decision of the superintending architect, Mr. Blashill, as to the general building line in that road. It was stated that under the discretionary powers granted under section 75 of the Metropolis Management Act, 1862, the County Council had already granted dispensing powers for a certain encroachment in the road, and when the appellant made application to bring his building out to the same line it was refused. Mr. R. C. Glen, instructed by Messrs. West, King, and Adams, appeared for the appellants, and called Mr. F. L. Pither, the owner's architect, and a number of freeholders and leaseholders in the neighbourhood, to support the application. For the respondents, the Vestry of Islington, Mr. J. P. Barber, the vestry's surveyor, made an able speech, contending that a dispensing authority for encroachments given by the council in one or more instances did not affect the general building line. The Court reserved its decision.—In the second case, Mr. D. A. Thomson appealed against the building line sought to be laid down at the corner of East-street and Kennington-road in the case of the Bricklayers' Arms public-house. Mr. F. Besley, Q.C., appeared for the appellants, and raised the preliminary objection that the issue of a certificate of the superintending architect would in this case be *ultra vires*, as they had no authority to define a building line in an old street that existed before the first Metropolitan Building Act of 1855, as in the important case of "Lord Auckland v. the Westminster District Board of Works" (26 Vic. "L. T." New Series, August 31, 1872). In the case of old thoroughfares existing before 1855, where there was curtilage, the council could not set back except compensation be given. Mr. Cates pointed out that the appellant had practically submitted to the Council, as he had made application that a building line should be defined. Mr. Besley said, without waiving his rights by yielding this point, his client would submit to any decision that the Court might arrive at. He would further point out that under the 74th and 75th sections of the Act of 1862 it was lawful for the County Council to require buildings when rebuilt "to be set back to such a line and in such a manner for the improvement of any street" as they might direct. Now as Kennington-road was 79ft. 6in. wide at this point, he contended that no setting back could be for the "improvement" of the thoroughfare. The road was gradually altering in character, and would, there was no doubt, cease to be a residential neighbourhood. In this case the proposed new licensed house would replace premises that had been built since 1786. In a long thoroughfare like Kennington-road the line of frontage should be set out, not according to the whole length of the road, but in separate sections. In this particular case his client would be quite willing to accept as a section the portion of the road between East-street and Tracey-street, and to take the parsonage built in 1872 as the line of frontage; this course would involve setting back 12ft. from the present pavement line. Mr. Besley called Mr. W. T. Hollands, F.R.I.B.A., of Temple-chambers, E.C., who produced plans of the site and premises and large-scale models of the buildings proposed to be erected. For the Vestry of Lambeth, the respondents, Mr. Smith urged that the frontage line must be taken for the entire line, and not in sections. Mr. T. Blashill, the superintending architect to the County Council, was called, and stated that in his duties he had nothing to do with consideration of changes in the character of neighbourhoods, but simply to define the building line. He could not accept the parsonage as the "general" line. The chairman said the Court would give careful consideration to the points stated by Mr. Besley and Mr. Smith.

An Extraordinary Case.—At the Liverpool Assizes, on the 29th ult., an action by David Rimmer, builder, of Prescot, against Thomas Bennett, a gardener, of Bromborough, was tried, it being to recover £210, balance of money due for work done. The defendant counterclaimed for £170. The dispute arose out of a building contract which plaintiff alleged was entered into as far back as 1880. He had built houses and obtained a mortgage for the defendant. He produced the deed and books, and also a bundle of receipts, said

o have been given for various sums of money paid s interest on the mortgage by the defendant. The atter had paid him £200 in 1880, and a similar sum n the following June. The defendant, when alled, said that he earned 18s. a week, and in 25 ears he had saved £176, which was in a bank. The plaintiff advised him to draw it out, and said hat if he would let him have the money for twelve ears he would at the end of that time receive an ncome of £1 per week. He trusted Rimmer, and gave him £170. He had signed various papers for Rimmer, but did not know what he was signing. He did not know Rimmer was building houses for him. He never gave instructions to have a mortgage drawn up. He never wrote the figures in the book produced. Rimmer had always warned him against lawyers. He had often written letters as coming from himself to Rimmer, and the terms of these letters had been dictated by Rimmer himself in defendant's house. The learned judge, in summing up, said it was the most extraordinary case he had tried. The plaintiff came and spoke to a state of things going on for twelve years, and the defendant came and told a contradictory story. The curious part of the case was that, if the plaintiff was wrong, then he had throughout the dozen years been acting in an extraordinary way. He had been courting persons to execute deeds, sign mortgages, had paid moneys, given receipts, and made entries in books all entirely false—the whole thing had been a fraud, and yet the plaintiff had managed to go on for twelve years with what must be a swindle. On the other hand, if the defendant was wrong, he had been concocting a lie consistent in every particular with details extending over the twelve years.—The jury found for the defendant, and intimated that the plaintiff must pay back to the defendant the £170 counter-claimed for.

Re Philip Shrapnel.—(London Bankruptcy Court, July 29, before Mr. Wildy, Official Receiver.)—The debtor, described as of 103, Cheapside, and elsewhere, states that since December, 1889, he has been business manager of various companies. Prior to 1889 he was manager and secretary to the Building Trades' Exhibition held at the Agricultural Hall, and has also been organiser and manager of exhibitions in the provinces. The liabilities expected to rank are returned at £3,056, and the assets are of doubtful value. It was stated that the debtor had been adjudged bankrupt, and the chairman intimated that he should apply for an order for summary administration.

Lord Campbell's Act.—Faint v. the Metropolitan Improved Dwellings Association.—This was an action tried in the City Court on the 28th ult., under Lord Campbell's Act, brought by Mrs. Faint, a widow residing at Enfield, to recover damages for the loss of her husband through alleged negligence. The damages had been agreed at £50 in the event of a verdict being returned for the plaintiff. In December, 1890, the plaintiff lived with her husband at some model dwellings, known as Enfield Buildings, Hoxton. The rooms occupied were on the ninth floor of the building. One night in December last year, the plaintiff's late husband came in at about half-past eleven. The lights were all turned out, it being customary for the defendants to turn them out at eleven o'clock every night except Saturday, when they remained in till twelve. The plaintiff went upstairs in the dark, slipped, and fell down a flight. A month afterwards he died from a broken rib and pleurisy, the result, as it was alleged, of the fall, hence the action. For the defendants it was submitted that there was no case to go to the jury, on the ground that the deceased man was well aware of the defendant's regulations as to the lighting of the building, and that by going up the staircase after the lights were out, he took the risk of doing so upon himself. The learned Judge held that the argument was a good one, and said that his duty was clearly to enter a nonsuit. After some further argument, he asked the jury to say whether or not in their opinion the defendants acted unreasonably in leaving the staircase unlighted. The jury answered this question in the affirmative. The learned Judge then entered a nonsuit, and on the finding of the jury gave leave to appeal.

In re R. T. Hookway, of Bideford.—An adjourned meeting of the creditors of Mr. R. T. Hookway, a builder and contractor, and an alderman of the borough of Bideford, was held on the 29th ult. at Barnstaple. The statement of accounts showed a surplus of over £3,000, this being principally made up of surplus of securities over the amount of the debts. The first meeting was held at Taunton, and was adjourned to Barnstaple in order that the Official Receiver might communicate with the Board of Trade with reference to a proof of the Devon and Cornwall Banking Company for £1,203. The Official Receiver now stated that he should admit the proof only for the purpose of voting that day, so that the question would be fought out in the courts. Subsequently the debtor was adjudicated a bankrupt. Mr. Barrett, of Barnstaple, was appointed trustee, and a committee of inspection was appointed.

Glasgow Arbitration Case.—An arbitration case, which is expected to last till Saturday, was commenced on Monday in the Windsor Hotel, Glasgow. The operations of the Commissioners, who purpose bringing water to the city from the new reservoir at Craigmaddie by means of four 36in. mains, and by way of Balmore-road, involve upwards of two acres of land along the edge of Possil Marsh, the property of the late William Graham, of Lambhill. The trustees claim £3,000, and the advisers of the Commissioners, considering that £1,500 was sufficient, offered that sum, which was declined. Mr. James Thomson, architect, Glasgow, is the arbiter chosen for the claimants; while Mr. James Drennan, land valuator, Ayr, has been selected by the Water Commissioners; Mr. Alexander Moore, C.A., Glasgow, being the oversman.

Extraordinary Assault by Builders on an Architect.—At Westminster Police-court, on Wednesday, Messrs. John and Edward Brown, builders, carrying on business at York-street, Westminster, were summoned for assaulting Mr. William Macey Seaman, an architect, on the 23rd ult. Mr. Bagot Harte appeared for the complainant, and Mr. Pawley defended. Mr. Harte said that Mr. Seaman was a well-known architect, and had on several occasions done work for the defendants. On the date alluded to the defendants came to his office at 2, Victoria-mansions, Victoria-street, and were shown into the complainant's private room by his clerk. When Mr. Seaman entered, the elder defendant, John Brown, produced a statement for £19, which complainant had sent to defendants a few days before, and told him that he must receipt the document. Mr. Seaman expressed his willingness to do so if the money or a cheque were handed over. The defendants said they wanted a receipt without the payment of the money, and took off their coats to force or fight him. In the scuffle that ensued one of the defendants struck Mr. Seaman upon the face. The conduct of the defendants throughout was most outrageous The complainant said he had had a lot of difficulty with reference to his accounts with the defendants. He was much astonished when the Browns demanded a receipt before they settled the bill; but John Brown coolly remarked, "Well, you are getting some money out of one job, and you ought to let us have this £19 job for nothing." He declined to append his name to the bill, and defendants said, "Then we will knock your —— head off." Their language was most disgusting. If his clerk had not come to his assistance the defendants would, in all probability, have inflicted some serious injury. Harry Elkins, clerk to Mr. Seaman, gave similar evidence. For the defence Mr. Pawley endeavoured to prove that Mr. Seaman was the aggressor, and denied that Messrs. Brown made the extraordinary demand mentioned. The defendants went into the box and gave evidence to this effect. Mr. Biron said he was convinced that the defendants went to Mr. Seaman's office with the intention of creating a disturbance, and he should bind each over in the sum of £25 to keep the peace for six months.

The foundation stone of a Conservative Club and Ford Memorial Hall for Bedminster, Bristol, was laid on Tuesday by Viscount Cross. Mr. A. Beaven, of Bristol, is the contractor.

The Accrington Town Council decided, on Wednesday, to purchase Oak Hill Estate for a public park, at a cost of £9,500. Oak Hill was formerly the residence of the Hargreaves, and the grounds, thirteen acres in extent, are well timbered. The owner, Mr. Reginald Hargreaves, offered land at 1½d. per yard, but the Corporation refused to buy, although the ratepayers had polled in favour of the purchase. The owner conceded two years' grace, and offered to give £1,000 towards laying out the ground, and on these terms the Council determined to purchase.

Dr. Westcott held an inquest on Monday at Clerkenwell Coroner's Court, on the body of Frederick Daniel Smith, aged 75, master builder, of 85, White Lion-street, Pentonville.—The deceased, on Wednesday evening, left home in good health, and an hour afterwards he was seen to stagger, and fall face downwards in the road in James-street, South Islington. He was at once picked up, and as the police judged that he was suffering from the effects of drink, he was placed in an ambulance, and conveyed to the Upper-street Police-station, where he gave his correct name and address. He was charged with being drunk, and was detained in a cell until 3 a.m., when his sons took him home. Subsequently he was attended by Mr. W. H. Day, who said he had long known the deceased as a steady, sober man. He became unconscious, and died on Thursday afternoon, a post-mortem examination showing that death was due to apoplexy.—A verdict in accordance with the medical evidence was returned by the jury, who added that deceased was not intoxicated at the time of his seizure.

WATER SUPPLY AND SANITARY MATTERS.

Glasshoughton Waterworks.—At a meeting of the Pontefract rural sanitary authority held on Saturday last, tenders for the execution of the waterworks scheme, designed by Mr. Malcolm Paterson, M.Inst.C.E., of Bradford, were opened, and that of Mr. J. R. Maw, of Hull, accepted. The total cost of the scheme will be about £1,200. At the same meeting the engineer was authorised to appoint a clerk of works.

Pollution of the Aire and Calder—Soothill Nether Drainage.—The Local Board of Soothill Nether, near Dewsbury, have accepted tenders for the execution of the scheme of drainage designed by Mr. Malcolm Paterson, M.Inst.C.E., Bradford, amounting to the sum of £10,100. The district is a manufacturing one, with a heavy discharge of trade refuse of a very noxious kind from woollen factories. At present there are practically no drains except rubble surface channels, designed for top water, and the scheme consists of (1) about 12,000 yards of brick and pipe sewers, gathered into two outfalls to a single point by gravitation, of which nearly one-half will be laid through private lands under difficult circumstances; and (2) works for the treatment of both domestic and trade refuse. The system will be lime precipitation in tanks, and deep filtration through four acres of alluvial silt well adapted for the purpose. The lime-mixing material is designed to be entirely automatic, including the propulsion of the lime powder, the agitation of the milk of lime, and the blending with the sewage, the whole being worked by sewage power.

STAINED GLASS.

Market Weighton Church.—A memorial window to the late Drs. Matthew and Alfred Jackson has just been placed in the south aisle of this church. The subject of the window is "Christ Healing the Sick." The work is from the studio of Messrs. Powell Brothers, of 30, Park-square, Leeds.

CHIPS.

The committee promoting the celebration of the Grammar School Tercentenary at Halifax, have conditionally entered into contracts for the erection of a memorial building to provide accommodation much needed to extend the usefulness of the institution. The plans for the proposed new buildings have been prepared by Mr. George Vialls, of Ealing, London (an "old boy") and Mr. William Watson, of Wakefield, will carry forward the work, acting as local architect. Contracts have been let for £2,036. The new buildings will be of stone. It is proposed to lay the foundation-stone on the tercentenary day.

Alterations and additions to the Catholic church and presbytery at Aberdare, and to the schools at Ebbw Yale and Treforest, will shortly be carried out from the plans of Mr. Charles C. Jones, architect, Cardiff.

Among the measures which received the Royal assent on Wednesday were the Public Health (London), Public Health (Scotland), Schools of Science and Art, and the Hanover Chapel Bills.

The trustees of the Derby School of Art have made a free gift to the corporation of the school and site, which, with the appliances, are valued at £14,000. The corporation accepted the gift on Wednesday, and resolved to spend £12,000 in extensions of the schools for the purposes of technical education.

The members of three committees of the Town Council of Glasgow made an official visit on Tuesday to the site of the new park for the north-western district of the city. The grounds are situated on the elevated lands of the estate of Ruchill, between Possil Park and Maryhill. The property extends to ninety acres, and was acquired at a cost of £54,000, being at the rate of £600 per acre. At present it is proposed that 55 acres shall be devoted to recreation purposes, and the remaining 35 acres utilised in the construction of an hospital, modelled on the lines of the one at Belvidere, which cost £100,000.

The municipal corporation of Bombay have now under consideration a code of building by-laws for that city. A series of special meetings of this body were held in July for the purpose of fully considering the draft by-laws, and after much discussion the code has been finally approved.

The death of Mr. Vincent W. Voisey, F.R.I.B.A., of Foster's-chambers, Small-street, Bristol, took place at his residence, Swiss Lodge, Durdham-park, on Friday. As a church architect he did some high-class work. He recently published a book of architectural and other sketches of Continental and other cathedrals, &c. He was at one time a Bristol Cathedral boy, and became a Fellow of the Institute of British Architects ten years ago.

Our Office Table.

Several important alterations have been made in the technological examinations for the session 1891-2, held by the City and Guilds of London Institute. The syllabi in the classes of electric lighting, telegraphy, and photography have been re-written, entirely or in part; practical tests have been added to both grades of the examination in the last-named subject, and the syllabus in mechanical engineering has been revised. Three subjects have been added to the programme—viz., goldsmiths' work, ship carpentry and ship joinery, in each of which practical work is required. The lists of works of reference have been revised, and some modifications have been made in the rules. All these and other particulars, together with a list of prize winners at the recent examination, will be found in the official "Programme of Technological Examinations," published for 6d. at Gresham College, E.C., and the Guild Offices in Exhibition-road, South Kensington.

At the last meeting of the London School Board, a letter was read from Mr. Charles Cox, whose tender for the erection of a school in Chisendale-road, Bow, was accepted in March last. Mr. Cox said: "As the protracted strike of carpenters and joiners seems even now far from settlement, and the best time of the year for building operations is rapidly passing away, I beg to inform you that I am willing to sign the contract for above, providing the Board will agree to allow me the increased cost of labour, should the men succeed in obtaining their present demands, which I estimate at £647 over and above the amount of the tender. Of course, if the carpenters succeed, all the other mechanics and labourers will follow as a necessity, as it would be impracticable to make a difference in the hours of labour between the men. You will also see by the list of tenders that even with the amount herein added to my tender, it will then be less than the next tender (Messrs. Holloway Bros.)." It was decided to accept Mr. Cox's tender at £17,259, and to allow a sum not exceeding £647 in the event of the carpenters' strike being successful, the exact amount to be determined by the Measuring Surveyor to the Board on the completion of the works. The total cost per head of this school, without the possible addition now sanctioned, and exclusive of site, will be £23 12s. 3d., and £14 10s. for the mere shell buildings, not reckoning teaching-rooms, foundations, fittings, or fences.

By the death from accident on the railway at Walkerburn Station of Mr. Robert Mathieson, Runic House, Innerleithen, the district has lost a highly esteemed and useful public servant. Mr. Mathieson was a native of Peebles, and since his establishment in 1871 as an architect and builder in Innerleithen, has done much good work in that and the neighbouring counties. He was widely known as a geologist, an astronomer, and naturalist, and has been termed the Hugh Miller of the South of Scotland. As an archæologist he knew every old kirk, broch, stannin' stane, battlefield, camp, fort, and castle peel for 30 miles round, and had discerned the vestiges of Roman, Celtic, Welsh, and Early British occupation all over the Borders.

Mr. Jonas Nichols, J.P., died at his residence, Brinton's-road, Southampton, on Thursday night in last week, as the result of a chill taken on Tuesday when on business in London. Mr. Nichols was born at West Chinnock, in Somersetshire, in 1836, and at an early age was apprenticed to a cabinetmaker and upholsterer. Completing the term, he went to Southampton in 1859, obtaining employment at Mr. S. Stevens's building establishment at Northam. He eventually entered into business on his own account in a small way in St. Mary-street as a cabinetmaker; but later on he commenced in the building trade. He purchased a piece of land, and on this built a number of small houses for the working class, and eventually he acquired the glebe land in St. Mary's, and built the property now so well known as Nichols Town; of late he has been specially connected with the building operations at Eastleigh, where he owned considerable property. Since 1879 he had been a member of the Southampton town council.

In the report of the L.C.C. Committee on Main Drainage it is stated that, during last year, 111,105,505 tons of sewage have been treated at the Barking Outfall, and the quantity of sludge obtained after precipitation has amounted to 421,500 tons of 92 per cent. moisture, including 11,728 tons weight of chemicals used. The cost of fuel used was £6,774, and that of iron £2,641. At Crossness, where only a small proportion of the sewage is treated, the intermittent precipitation has resulted in the treatment of about 19 million tons, the quantity of sludge obtained being 77,513 tons of 90 per cent. moisture. The quantity of sludge taken out to sea from the two outfalls by the Council's sludge ships has been an average of 1,500 tons per week. A sum of £24,560 was spent last summer for the chemicals, manganate of soda and sulphuric acid, used in deodorising operations at the outfalls and storm overflows. The council have appointed an expert to undertake experiments to ascertain whether some means can be devised for dealing with sewer emanations, and also to examine and report on the organisms in sewage and sewer air under various conditions, and the effect of antiseptics on them.

At the meeting of the Lambeth vestry on Thursday evening, a letter was received from Mr. Mark Beaufoy, M.P., stating that Lambeth had the opportunity of securing two fine specimens of old Lambeth art. Arundel Castle is being partially rebuilt, and two terracotta figures, 10ft. high, which were modelled in Lambeth (probably by John Bacon) and burned by Coade in 1798, had been bought by Mr. Edgley, who was willing to present them to Lambeth for one of its open spaces. The vestry unanimously agreed to accept the figures, and to place them in the garden on the Albert Embankment, opposite St. Thomas's Hospital, close to where they were originally made. The vestry passed a vote of thanks to Mr. Edgley for his gift, to Mr. Mark Beaufoy, who bears the expense of bringing the statues to Lambeth and of fixing them, and to Mr. J. Francis Bursill, who recognised the figures as Lambeth work, and induced Mr. Edgley to present them to the parish.

The council of the Ontario Association of Architects has had printed and circulated in pamphlet form the by-laws of the association together with a complete register of the members arranged alphabetically and also according to place of residence, and a transcript of the Ontario Architects' Registration Act. Toronto leads off with 73 members, Ottawa following with 19, Hamilton 11, Kingston 7, and London 5, while the members in other towns total 39, making in all a membership of 154. This number includes practically all the architects in the province.

Not much has been heard, for many years, of the excellent scheme for the formation and preservation of a representative national collection of photographic portraits, inaugurated as long ago as 1864 by Mr. James Glaisher, F.R.S., and adopted by the Amateur Photographic Association, of which the Prince of Wales was, and continues, president. Seven-and-twenty years ago, however, the portraits were only carte-de-visite size, and no permanent process being then known, it was not surprising that the two hundred small silver prints then executed and deposited in South Kensington Museum were regarded as so unsatisfactory that the project fell into abeyance. The prosecution of the task has now been resumed under more favourable conditions, and over two hundred large portraits, executed by the permanent-carbon process, are about to be added to the Museum collection. These were on exhibition at a private view on Saturday. The present series have all been taken by Mr. Arthur J. Melhuish, hon. secretary to the association. The photographs are taken for the purposes of this collection only, and not for publication, and previous to its being placed in the Museum, each portrait must be approved by the sitter and by the standing committee. It is obvious that a heavy responsibility rests on the selection council to determine who may be regarded as "eminent representative English men."

The Broadway Cable Road, New York, for street cars is in progress, and is a substitution of cable for horse traction. The extent of the work, its costliness, the traffic in the street, and the obstructions encountered in the shape of pipes and drains, conduits, &c., are noticeable. There are two parallel lines of track. The steel rails are of the grooved girder type, 7in. high, and weigh 91lb. The best rail weighs 67lb. to the yard. At intervals of 4ft. 6in. they are supported on cast-iron flanged yokes, about 5ft. long on top, and 2ft. high, and the cable conduit is formed in the centre of this yoke, and is U-shape in section, formed of $\frac{3}{8}$in. steel plates, bolted to the yokes, to which are also bolted the Z-shaped steel slot rails, which have a slot of $\frac{3}{4}$in. wide. The yokes are bedded in concrete, and the conduit is surrounded by a prism of concrete. A bed of concrete $6\frac{1}{2}$in. thick is laid flush with the top of yokes under the whole street pavement of granite blocks. Particulars and sections of the roadway and yokes are given in the *Engineering Record* of July 25th.

Some interesting details are given of the Opera House, St. Paul, Minn., in the *Engineering Record*. The house is 100ft. by 183ft., and from 60ft. to 100ft. high. The outer walls are of granite of three stories, and brick and brown stone above. The internal construction is mainly of steel, concrete, and terracotta. The floor beams and girders are of steel, also the floor joists and Z-bar columns. The floors are of concrete, laid on flat terracotta arches, or on corrugated iron sheets between the floor joists, and covered with matched pine boards. The exposed beam flanges and columns are jacketed with terracotta fireproof sheathing; the partitions are of hollow brick. Curved girders are used in the balcony and gallery, these forming the risers between the seats, an arrangement entirely new, which has proved a very economical construction, and will give a safe load of 150lb. to the square foot. Mr. A. Reed is the architect, and Mr. Olaf Hoff the consulting engineer.

CHIPS.

The commission for the execution of the stained-glass east window in St. Anne's Church, Strathpeffer, to the memory of the late Duchess of Sutherland, has been intrusted to Messrs. Powell Bros., of Park-square, Leeds, whose design was selected in competition with other art firms.

A Primitive Methodist Chapel and School is being erected at Withington, near Manchester. The architect is Mr. Joseph Swarbrick, C.E., of Manchester, whose designs were recently adopted by the trustees.

The son of the late Mr. Edwin Long, R.A., has intimated his intention of making provision for an annual prize, to be given in perpetuity at Bath College, in memory of his father. Mr. Edwin Long was a Bath man, and commenced his education in that city. It is said, however, that he devoted more time to sketching caricatures of his schoolmaster than to his books.

A new Congregational church and Sunday-schools are being built at Haydock at a cost of £9,000. The buildings are in the modern Gothic style, and include a church to accommodate 600 persons, and lecture hall, four class-rooms, infants' room, and library.

Miss "Field Commissioner" Booth visited Sunderland on Sunday, for the purpose of opening a new "citadel" in Lambton-street. The dimensions of the large hall are:—Height, 30ft.; length, 62ft.; breadth, 73ft.; and a room which has been placed at the back, partly under the platform, measures 48ft. by 25ft. A gallery is provided, and the building will seat 1,800 persons. The external doors number eight, and there are four large staircases to the gallery. Mr. W. Gilbee Scott, of London, is the architect, and Mr. F. T. Coxhead, of Leytonstone, the builder.

A letter dated from Boulogne-sur-Mer has been received by the creditors of Councillor Davison, builder, of Birkenhead, who disappeared on the 4th July, stating that his absence is due to ill-health and mental troubles, and that there "ought to be sufficient funds to pay all creditors and leave a provision for his family." He has also written to the town clerk resigning his seat on the corporation.

On Friday evening, at the Lion Hotel, Caerhowel, a supper was given by Colonel Harrison to the men employed upon the works at Caerhowel Hall, which is now undergoing alterations and considerable enlargement, under the direction of Mr. W. H. Spaull, F.R.I.B.A., Oswestry, the contractor being Mr. W. H. Thomas, Salop-road, Oswestry. The chair was taken by Mr. Frank H. Shayler, clerk of the works and assistant architect to Mr. Spaull.

The convalescent home at Seaford, opened last week, has been built from designs by Mr. Ewan Christian. Mr. Shilton, also of London, is the contractor, and the outlay has been £15,000.

As a result of his persistent questioning of the Government on the subject, Mr. Elliott Lees, M.P. for Oldham, has received an intimation that the Government will do their best to persuade the trustees of the National Gallery to make arrangements for a periodical interchange of the pictures lent to provincial art collections.

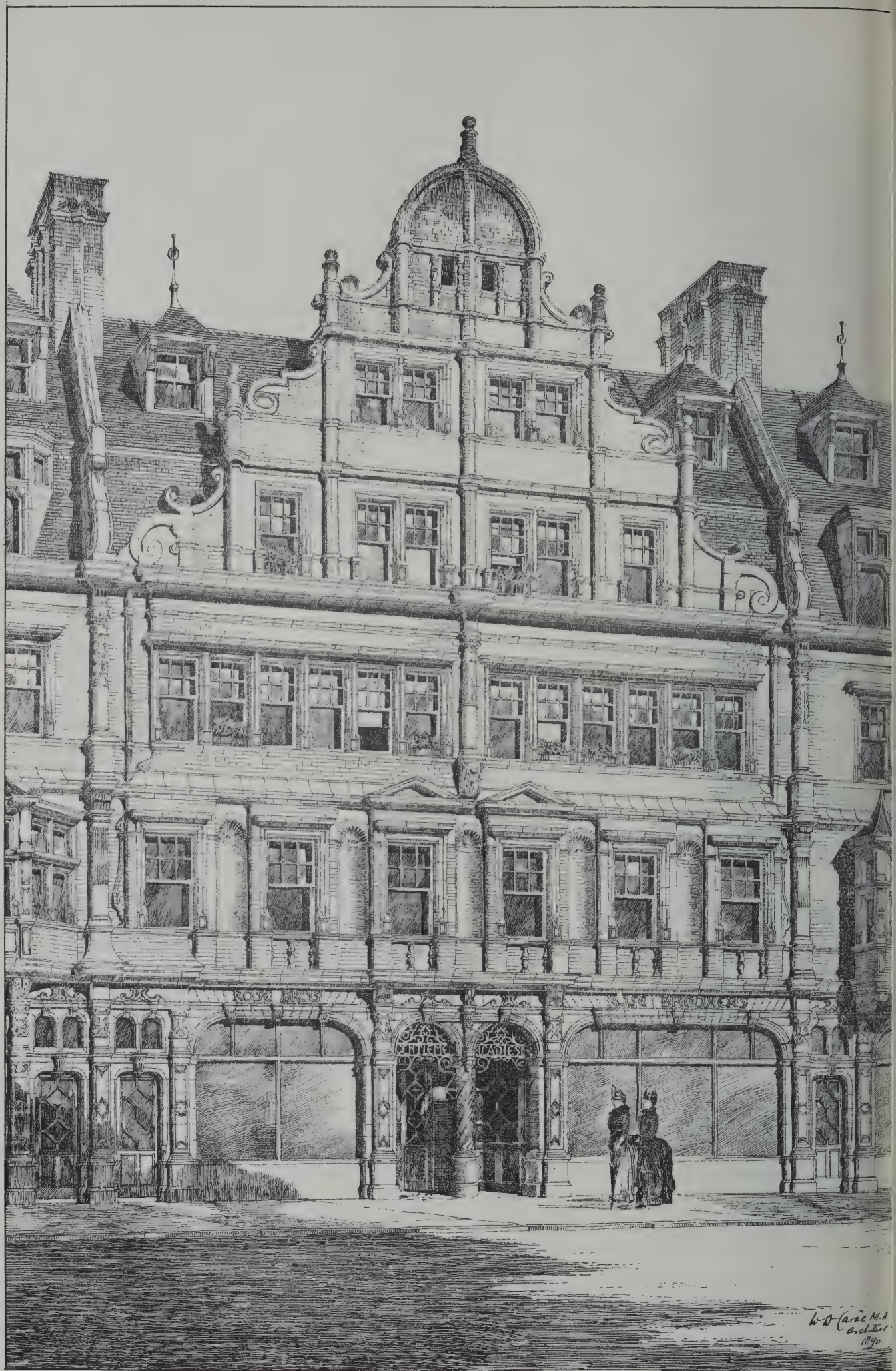


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MESSRS ROSE BROS' NEW PREMISES · DUKE ST · GROSVENOR SQ · W.D. CARÖE · M.A. ARCHT







Ground Plan

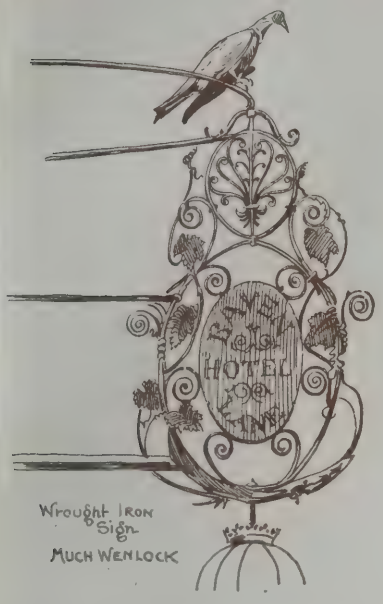
10 5 0 10 20 30 40 FEET

NEW · POST · OFFICE · · BRENTWOOD ·

A · T · G · WOODS · ARCHITECT ·



First · Floor ·



Wrought Iron Sign
MUCH WENLOCK



DOORS TO SOUTH PORCH ST. MARY'S CH.
SHREWSBURY.



House
Butcher's Row
SHREWSBURY.

Shropshire Studies

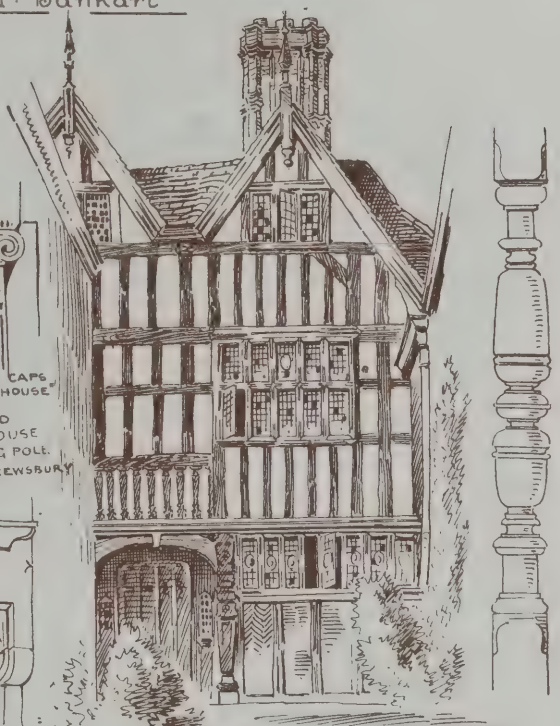
from the Sketch book of
Geo. P. Bankart



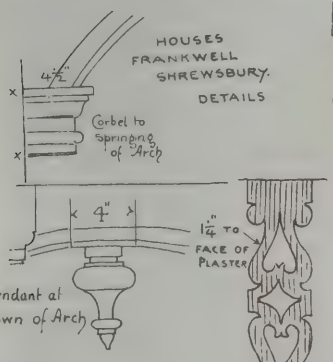
OLD HOUSE
MUCH WENLOCK
SALOP

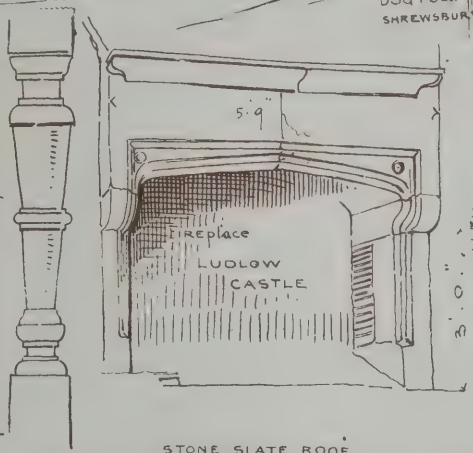


PILASTERS CAPS
"GATEWAY HOUSE"



OLD
HOUSE
DOG POLE
SHREWSBURY







GABLE ON SOUTH TRANSEPT

STONE SLATE ROOF



DETAIL MUCH WENLOCK SHROPSHIRE PRIOR'S HOUSE



OLD GABLE
HOLY CROSS
SHREWSBURY.

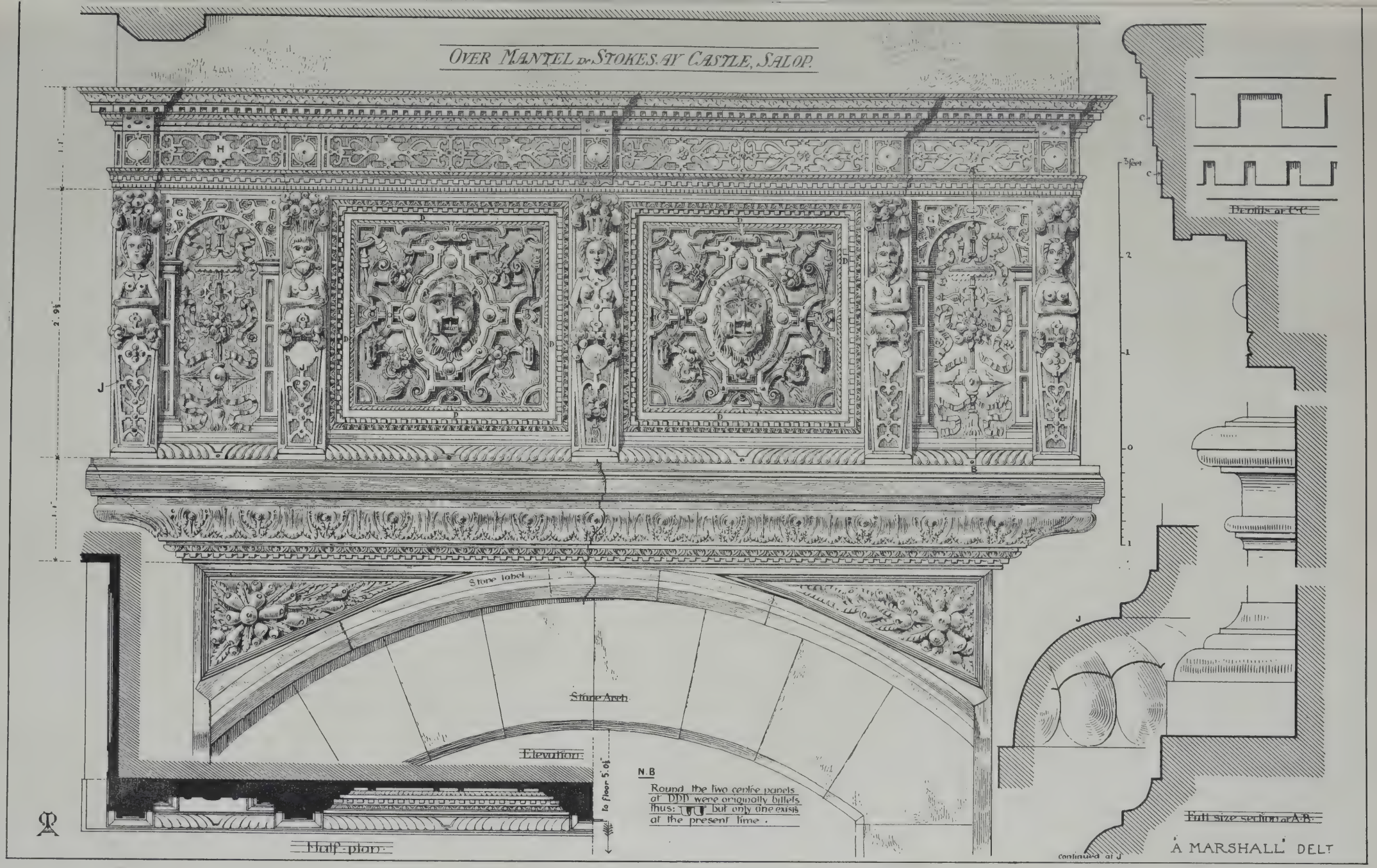
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Printed & Published by Architectural Publication Society, 13 Queen Square W.C.

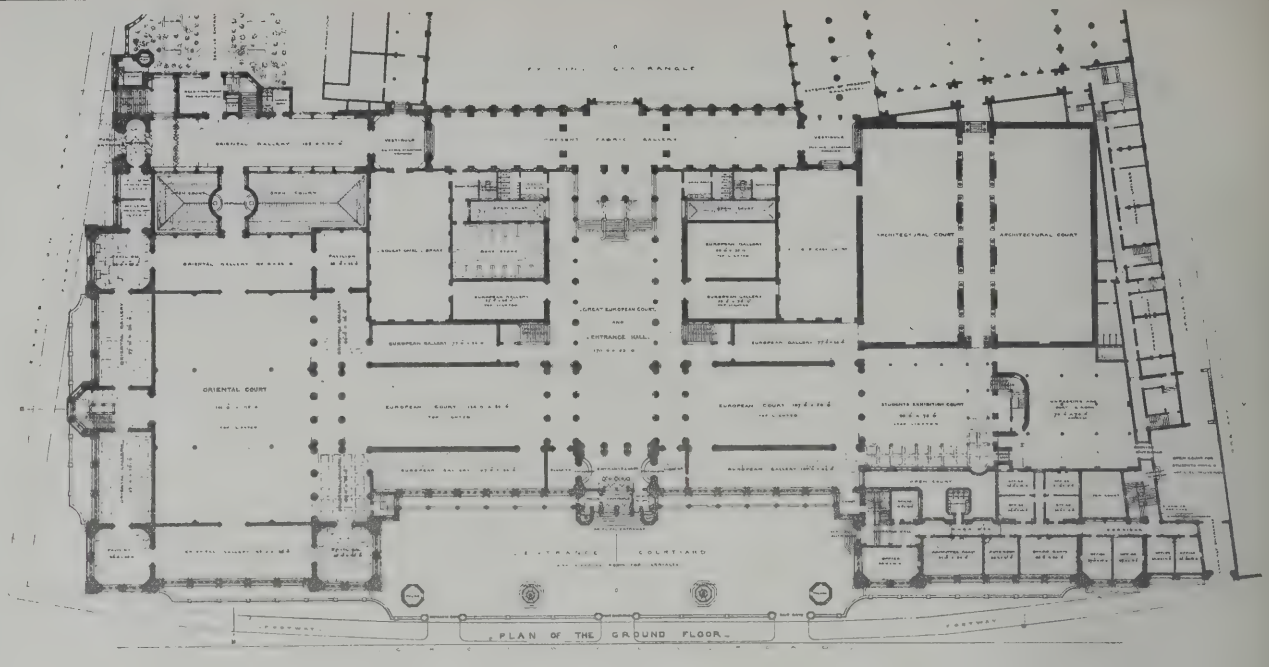


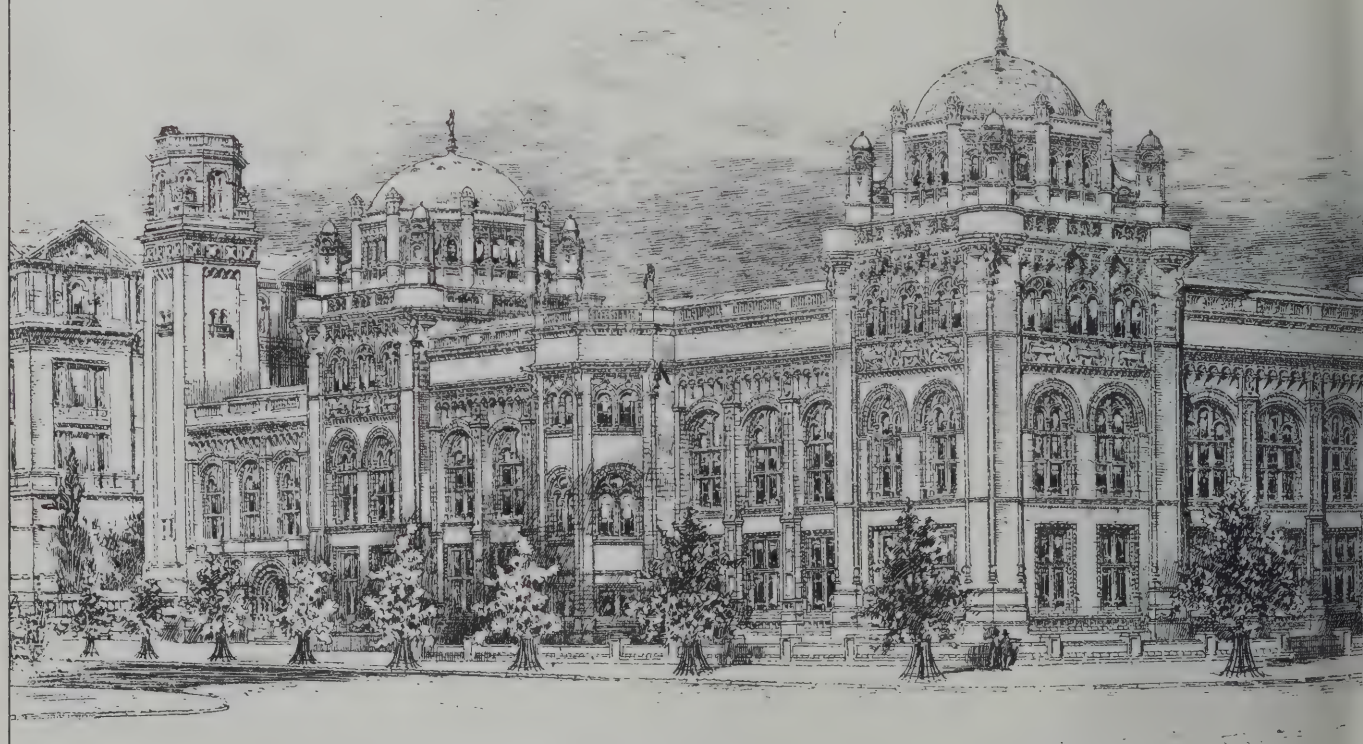
PHOTOGRAPHED BY MR JONES, LUDLOW.

Architectural Association Excursion in Shropshire 1891

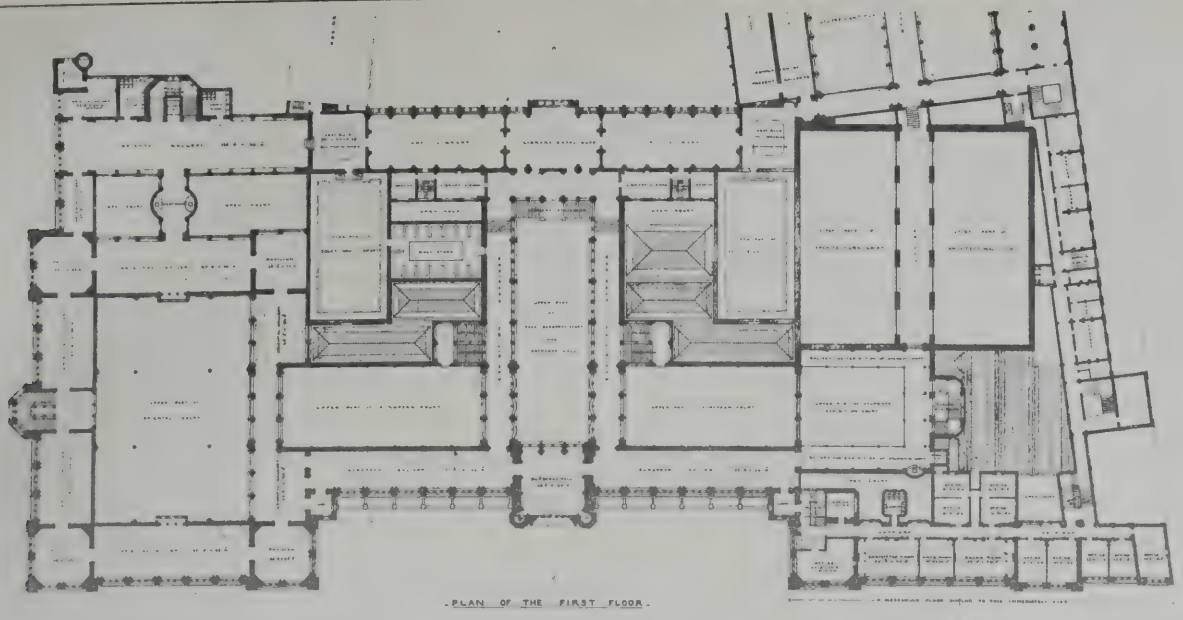


Architectural Association Excursion in Shropshire 1891





SELECTED DESIGN FOR S



PLAN OF THE FIRST FLOOR.



NSINGTON MUSEUM BUILDINGS.

RCHITECT.


ACCEPTED DESIGN
BARTON ON IRWELL UNION
PROPOSED EXTENSION.
Birds-eye View showing Complete Scheme with Future Extensions to Hospitals.
MANGNALL AND LITTLEWOODS ARCHTS
MANCHESTER
CRIPPINS MILL



Photo-Lithographed & Printed by James Akerman, 6, Queen Square, W.C.

THE BUILDING NEWS
AND ENGINEERING JOURNAL.
VOL. LXI.—No. 1910.

FRIDAY, AUGUST 14, 1891.

SPECULATIVE ARCHITECTURE.

SPECULATIVE designing, or that kind of architecture which exists only on paper, and which has no other rational ground than that of exhibiting the author's skill as a draughtsman, has its merits and demerits. To a certain extent, competition work may be included in the term; the man who sends in a design for a given building on the chance of winning a premium is a speculative designer, though he may have something more practical in view than the student who prepares a design for a cathedral or a national museum as a competitor for a prize at the Royal Academy, the Institute of British Architects, or a school of art. A public competitor for some building to be actually erected is generally one who knows a little of practical architecture and the requirements of buildings of the kind that he is about to engage in; but not so the student in an art school who sets himself the task of preparing a design for a building that is proposed to a class. The term "academic" architecture would be more strictly applicable to this class of effort, perhaps; at least, there is this distinction between the two sorts of design—in one case the author has to apply his skill to a building that is to be executed, in the latter case no actual building is contemplated, only a design on paper, in which the artistic powers of the author or student are called into exercise. In the one case actual conditions or instructions have to be complied with; in the latter the conditions are imaginary or merely assumed. Consequently a great deal more freedom and artistic imagination is permitted in the academic design than in one which has to follow instructions of a building committee. Except this important difference, the term "speculative" may fairly cover the ground, as both kinds of effort are more or less tentative, matters of conjecture, problematical. The work has the character of an essay. The product of the artist's mind is a paper design, and this definition comprises to a large extent modern architecture, which has no other existence than that of designs on paper.

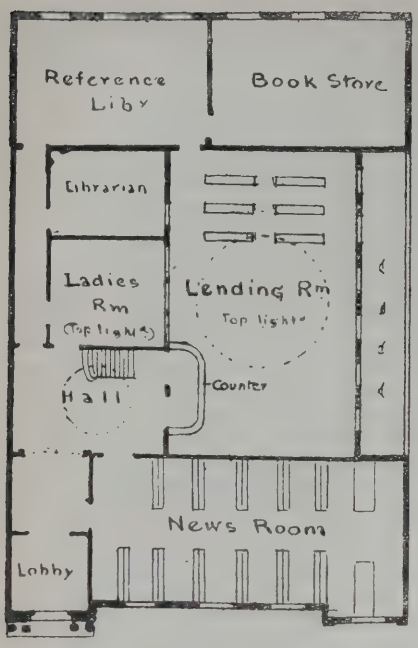
We do not desire to underrate the value of speculative design. Competition, whether for actual buildings or for the purpose of instruction in schools and academies of architecture, has its value. Many of our finest edifices owe their inception to the working out of the artist's ideas on the drawing-board, unhampered by considerations of expense, material, and construction. The practical architect is restricted very much by these things; his pencil is cramped by practical and ever-present conditions; his plan must meet actual requirements, which are often quite incompatible with good or artistic design; his elevations are restricted by considerations of cost and the use of a certain material. But these matters do not weigh on the mind of the speculative designer, whose conception on paper may never be translated into bricks and mortar. The results we see in many of our public competitions, and especially in prize designs of students of the Academy, designs for the Soane Medallion, and those submitted for medals and prizes in the Department of Science and Art—impossible designs for Houses of Parliament, cathedrals, churches, and technical colleges.

One of the characteristic weaknesses of this class of design is that of an utter disregard to cost. The scheme is too ambitious. A hall and vestibule of grandiose proportions, adorned by marble staircase columns and arcades, and surmounted by a dome or a richly-panelled vault, is a feature the youthful aspirant to technical honours is never tired of introducing. It serves to exhibit not only his skill as an artist, but his architectural resources and learning. Stately corridors surrounding courts or quadrangles of almost palatial dignity lead from the hall to the apartments. These are, of course, equally sumptuous and magnificent in their proportions and decoration. Externally the mania for pavilions, domes, cupolas, and turrets is rampant. They are prodigious in size, and vie in splendour with the glories of the Duomo at Florence, St. Peter's at Rome, or the Invalides at Paris. Symmetry of plan and elevation is another characteristic of the speculative designer. If the design be that for a church, the cathedral form is chosen; it is modelled after Canterbury, Lichfield, or St. Paul's; it must have a central tower, spire, or cupola, with western towers. If it be for a domestic or town mansion, the balanced and geometrical plans of Blenheim, Holkham, or Castle Howard are selected. If for a civic or public building, all the resources of architectural composition are embodied, and visions arise of such edifices as Barry's Parliament Houses, the Tuileries, Versailles, or the Escurial. The grand and stately arrangements of these buildings are pressed into service, even although they are unsuitable, and have to be reduced in scale and shorn of much of their magnificence in order to bring them into unison. Scruples as to size or dimension do not enter into the head of the author; peculiarities of site are ignored. There are yet advantages in the study of these designs; they present architecture in the abstract, good classical models are consulted, and the powers and capabilities of the designer are called into exercise.

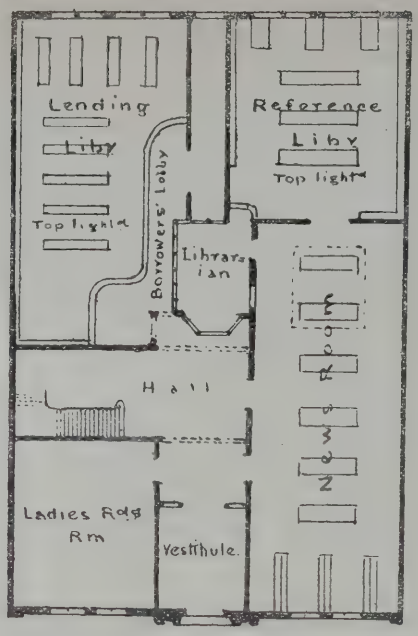
Disregard of the practical conditions of design are not less strongly shown in materials and construction. The author has taken his model and worked it out with absolutely no reference to material, which may either be stone or costly marble, brick, or terracotta. Not that it matters much: the design will never be executed. The design, if a Classic building, looks as if it were carved out of a solid block; no indications of courses or bond are given in the set of drawings in ink or sepia. From first to last the student has probably never asked himself the question as to the material or how it is to be worked. The sections are marvellously vague; they are ominously silent as to the mode by which the cupola or central lantern is to be carried, as in one of the designs for a cathedral awarded a silver medal in the National Competition; or how headway is to be obtained for a grand staircase to the first floor. As they are generally blacked in, or tinted in one colour, and all intricate construction omitted or shown in solid section, it is often a puzzling matter to find out. But want of constructive detail is made up by artistically-drawn interior elevation and decoration, and the chief object of the section is apparently to show the interior apartments. The French system of drawing sections in isometrical perspective has some indisputable advantages when a pictorial effect of interior arrangements is desired, the sectional parts being blacked in; indeed in this kind of representation we are much behind the French and German draughtsmen. Artistic draughtsmanship is no doubt greatly benefited by this supercilious disregard of constructive detail, which devotes all its ability to the figures of a frieze, while it neglects to show the girders and other constructive expedients necessary to carry a roof or a dome. The academical *regime* confines a man to the external architecture, the style and canons of art; it cultivates the student in the historical sequence and critical exposition of his art; it makes him a good doctrinaire, skilled in tenets and schools, but very unfitted to apply his knowledge to practical everyday wants.

An inclination to exaggerate effects is common enough in designs of this class. Thus a vaulted hall of proportions suitable for a cathedral or a rotunda, and dome of height and size that will almost compare with that of the Capitol at Washington, are met with in designs by novices submitted in competition in the Academy, or for the Department of Art. A domical hall is introduced where a practical architect would have been contented with a vestibule of moderate dimensions, and the columnar ordinance where common sense would have dictated a plainer treatment. Again, the academic *régime* cultivates the letter rather than the spirit of art, and this has been the principal objection urged against the teaching of the Academy of Fine Arts of Paris, where the copying of the antique has taken the place of all independent study, and led to the subordination of the individual. The late M. Viollet le Duc, referring to the teaching at the Ecole des Beaux Arts, says, "It is confined to copying what are commonly called *academies;* that is, nude men always under the same light, in the same place, and in positions which may fairly be described as torture paid by the hour. This course of drawing from nature has now lasted for about 217 years." Much the same may be averred of the academical studies of architecture which our art schools inculcate. Formulas of style, classical ordinances, porticoes, domical compositions are taken as indispensable recipes for making architecture.

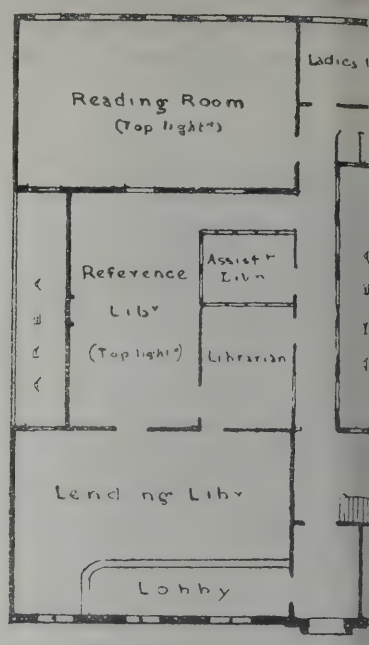
Competitions for public buildings have fostered speculative designing. Many men whose practical experience of building is small can devote much time to the preparation of designs for town halls and municipal edifices, and can thus display their abilities on paper. The competition for the South Kensington Museum completion was a good opportunity for the exercise of ambitious or "high flown" architecture; the requirements were of a kind to develop into imposing features; the programme of plan consisted of great courts and galleries devoted to Oriental and European exhibits, without any of those small and tedious divisions of plan which are required in more everyday buildings. It was easy, for example, to introduce large domical halls and courts surrounded by colonnades or arcades in the form of loggie. A central dome or tower naturally suggested itself over the entrance hall, and pavilions of ambitious design over the intersections of plan, and at the main angles. The superimposed arcade or loggia round the courts is a feature which admits of great effects, and the models of the Italian cortile, the Borghese, and the courtyards of many Spanish palaces lend themselves to the imagination. Incentives to adopt Classical features are not wanting in preparing designs of this sort. In the Museum competition the authors have availed themselves of the columnar treatment found in the Renaissance of Italy and the Spanish Peninsula, and the picturesque architecture of Granada and Seville. Palladian and Moorish features have been called into requisition, together with that playful kind of hybrid which goes under the name of Churriqueresque—a sort of Louis Quinze style, suitable only for the silversmith or furniture designer. The architectural designs for which prizes are awarded in the Department of Science and Art are even more prodigal and profuse. Cathedral churches, public and classic halls, science and art museums, law courts, and town mansions are the kind of subjects which the authorities have set before students. The result, as we have shown, is not favourable to pupils who are studying architecture as a profession. All sorts of



PLAN A



PLAN B



PLAN C

extravagant notions are encouraged, and as draughtsmanship is mainly regarded by the examiners, the more elaborate designs stand the better chance of a reward. As we have observed, speculative or academical design is of advantage as a means of education in style; but it has the objection of fostering costly and unpractical schemes, and often a kind of draughtsmanship detrimental to real art.

FREE PUBLIC LIBRARIES.—XV.

PLANS OF OBLONG SHAPE.

AS examples of libraries planned for plots of rectangular shape having a depth of about double the frontage, we give sketch plans of three designs recently submitted in competition for the Public Library of St. George, Hanover-square. In this instance streets on both frontages exist, and the dimensions of the site were 80ft. frontage and 120ft. depth from street to street. On both sides there are buildings which preclude the possibility of obtaining light by windows on either side. The requirements were, on the ground floor an entrance, newsroom of about 2,000 square feet, a lending library of about the same area, a reference library of half that area, besides a ladies' room and necessary conveniences; above, a museum, committee-room, librarian's room; and in the basement, stores, caretaker's room, &c. The problem is one that is often likely to be solved in towns, where large open sites are not readily obtained, and therefore we have thought it useful to refer to plans of this description.

TWO METHODS POSSIBLE.

As the area available was not more than sufficient for the accommodation required, it was obvious that some economy had to be exercised. There were two possible courses open to the architect: one was to provide areas for light, and the other course to occupy the whole area and provide top lights to some of the rooms, as the frontages only permitted windows of a limited size and height. The requirements of the museum and librarian's rooms restricted the area for top-lighting, as these had to be provided on the upper floor. Those who sent in designs have shown both principles. The plans with light areas indicate one mode of accomplishing the object; but an area to be of any practical good must be of sufficient area to allow rays of sunlight to take an angle of 45°, or thereabouts; any narrower limit would not be of much service. But in a limited plot in a street it is not easy to obtain areas of sufficient size. One mode may be used in this case with advantage in a site which admits of lateral light, and that is to have a side area adjoining the premises on one or both sides, provided, of course, that the buildings adjacent are not too lofty and no obstruction is offered.

SIDE AREAS

have been arranged in plans A and C. In plan A the area is provided to assist in lighting the lending library. The windows are placed above the bookshelves of the room, which is also lighted by a circular lantern over the centre. If the adjoining houses are not lofty, and the windows are inserted near the ceiling, it is not difficult to admit sufficient light. In plan C an area is shown on both sides, one of them lighting a corridor, entrance hall, &c., with borrowed lights in the walls of librarian's and assistant's offices, and the other the reference library, lending library, and newsroom. All the latter departments have top lights in addition. When a right of light is not obtainable, it would be necessary to make these lateral areas of sufficient width to insure a not too perpendicular angle of light over the adjoining premises. The question is one for arrangement. The legal point of easement of light has to be considered before the windows are introduced in side walls. There are advantages in having side areas, if they can be rendered of value for lighting; they allow of cross ventilation, allow the roofs to be more independent of adjacent property, and in other respects they are useful.

TOP-LIGHT.

When side areas are not available, owing to the difficulties we have pointed out or through want of width, top lighting must be resorted to, though, of course, this principle is limited by the necessity of having a second story over a portion of the site. The provision of a museum over the front portion of the site—a very questionable addition to a town or suburban library—curtails the space for skylights or lanterns over the ground-story rooms. In plan A the museum and committee-room occupy the front over the newsroom, an area of 1,800ft. being appropriated to that purpose in some plans; while over the reference library in the rear we get a librarian's room and book-store. Between these double-storied portions is t flat over the hall, lending library, and ladi room, with lanterns for light. Plan C sho the lending library only partially covered the museum. The back wall of museum carried on a girder, and a narrow skylight obtained outside, which lights the lendi library on the inner side. The rest of t plan is uncovered, and therefore is availa for lantern lights.

Plan B, which has been selected, exhib a fully-occupied area, the departme covering the whole space between the pa walls and the rooms are mainly lighted skylights in the rear of the museum, whi occupies the first story in front. T museum back wall runs across the ne room near the inner end; hence there i space of flat which has been utilised fo skylight at this end. The front windo admit light to the front portion of this roo Lanterns are provided over the lending a reference libraries, and the librarian's off is also top-lighted. The librarian's acco modation is on the second floor.

ENTRANCES AND LOBBIES.

The three plans illustrate also three diffe ent modes of entrance. The side entrance h the advantage of allowing one of the rooms be placed lengthwise to the main front. plan A the newsroom occupies this positio As this is the principally frequented roo it ought to be near the entrance, so as prevent confusion and allow of easy ingre and exit. The hall and borrowers' lob are next in importance, and therefore t lending library is suitably located in t centre. In plan C the entrance is on t opposite side, and the author has placed t lending library and borrowers' lobby ne the principal doorway. Much confusion a possibility of collision are secured by t arrangement. The borrowers' departme is in great requisition, and therefore should be seen, if possible, on entering t library, so that those borrowing books exchanging them may be able to enter a pass out of the building as quickly as po sible. The newsroom would be better whe the reference library is, unless an ind pendent entrance was made from the stre in the rear. Plan B shows a central e trance; the newsroom is conveniently enter from one side of hall, but the borrowe lobby is rather out of the way, and borrowe would have to pass by the newsroom a ladies' room in order to reach it. But

entre entrance to a building of limited width necessitates placing the main rooms—such as the newsroom—with their long axes at right angles to the front, one on each side of the entrance corridor, and therefore of lighting them by end windows only supplemented by top-lights, unless side areas are provided.

SUPERVISION.

A very desirable provision is that the librarian's office should have as central a position as possible, to enable the librarian or his assistants to have a command over the departments and entrance. Plan B adopts a good position for the office, and plan C shows the offices overlooking the reference library and the corridor from newsroom. The office should, if possible, be placed to overlook the entrance hall as well as the newsroom and reference library; but in many public libraries the office is placed in some out-of-the-way part, and at a distance from the newsroom.

GLAZED ROOFS.

We have given sections of lanterns or raised skylights, to which we refer the reader for further information on this point. Sometimes, however, it may be desirable to glaze the centre roof or ceiling from wall to wall. When a long room has only a few end windows and a portion of it in the rear can be lighted above, the utmost advantage can be taken if the roof is constructed with hips to form a low pyramid over the part of room so lighted. These hips can be made of substantial size and moulded, and the bars of lights also moulded and decoratively painted below, the whole forming a large lantern of the whole area of that part of the room top-lighted. The flat ceiling can be made to finish against a cross beam carried in trusses on pilasters, or be divided into compartments or panels. In this manner a long room can be partly lighted by windows at one end and partly by top-lights.

THE CONGRESS OF HYGIENE.

DURING the present week the seventh international congress of hygiene and demography is being held in London, this being its first assembly in this country. It is being largely attended by foreign, Indian, and colonial delegates, and the interest of the many gatherings simultaneously held in the ten sections is well sustained. The meetings take place in the buildings of London University and other rooms at Burlington House, and at the Geological Museum in Jermyn-street. An exhibition of sanitary appliances and a bacteriological museum are among the special features of the Congress.

The opening meeting was held on Monday, when the Prince of Wales, as president, delivered the inaugural address. He remarked that of late years much attention has been paid to the dangers to health, especially in large towns, and much had been done to avert them. The good already accomplished should encourage them not to be content, until prosperity in business, and all other things desirable for the national welfare, were made consistent with national good health. They would also have to consider the conditions under which the greatest working power of men could be maintained. Eulogies of Dr. E. A. Parkes, Dr. de Chaumont, and other deceased Englishmen who had led the way in hygienic reforms were delivered by Dr. Bronardee, of Paris, Prof. von Coler, of Berlin, Prof. Corradi, of Pavia, and M. Körosi, of Buda-Pesth, and Dr. Roth, of Saxony, as representing the foreign delegates. In the evening a conversazione was held at the Royal College of Surgeons.

ARCHITECTURE IN RELATION TO HYGIENE.

The section probably of most interest to our readers was Section VI., dealing with "Architecture in Relation to Hygiene," of which Sir Arthur W. Blomfield, A.R.A., is the president and Mr. Ernest Turner, F.R.I.B.A., the secretary. In his presidential address, delivered on Tuesday, Sir A. Blomfield said the difficulty of deciding what was the relation of architecture to hygiene lay in the uncertainty as to the strict limits for the practice and duties of the architect. If the late James Fergusson's views were accepted, that architecture was the art of ornamental and ornamented architecture, most of the papers proposed to be read and discussed in that room would have to be addressed to some more purely scientific section. If they accepted the more usual definition of architecture as the art and science of building, its relation to hygiene at once became too varied and complex to admit of clear or concise description. He threw out the suggestion that at a future congress an instructive paper might be written dealing exclusively with the points of contact between hygiene and the purely æsthetic side of architecture, a branch of the subject thus far practically untouched. But if education and culture continued to advance as they had done in the last fifty years, and habits of intelligent observation were fostered and encouraged, the eyes of the masses would every day become more sensitive and fastidious; the dreary and monotonous streets, and badly-designed buildings which at present passed unnoticed, would begin to exercise a depressing and disturbing influence on the mind, which could not fail to have some ill-effect on the health, comfort, and general well-being of the community. It was now a recognised fact that certain colours, quite apart from the nature of the pigments or dyes which yielded them, produced very decided effects, both on the mind and body when in certain conditions, and it was probable that the same was true of certain combinations of colours and even of form in which the skill and taste of the artist must be paramount, and in which the aid of science, however necessary, could only be looked upon as subsidiary. Dr. B. W. Richardson, in a lecture given some years ago, dealt with this subject in a systematic manner, and the President would like to see the same topic treated by an architect from an artist's point of view.

A vote of thanks was passed to Sir A. Blomfield, on the motion of Professor Ferger, of Copenhagen, who eulogised the work of English architects, seconded by M. Charles Lucas, of Paris.

OPEN SPACES.

In a paper on "Open Spaces," written by Mrs. Basil Holmes, and read by Earl Meath, it was shown that the provision of the healthy areas needed to insure the health of the people could be best secured by a systematic acquisition and preservation of land for public recreation in connection with the towns and in relation to their growth, and increased facilities for taking people from the towns into the country. Public recreation-grounds should be provided in each parish in proportion to the number of inhabitants, and there should be a fixed minimum of open space for a certain number of the population.

HYGIENIC PRINCIPLES FOR THE EXTENSION AND INTERNAL IMPROVEMENT OF TOWNS.

A communication on this subject was read by Herr F. Stübben, city architect of Cologne, who urged that the extension, and also the internal improvement of a town ought not to be left to private voluntary means, but should be ruled and governed by official laws of the district and State. He held that there should be demanded sufficient width of streets, public planted pleasure grounds, cleanliness of sub-soil water and air, arrangement of definite building blocks in suitable sizes, and good sanitary, plumbing, and disposition of buildings, workplaces, and dwellings. To gain these points the district or State should prepare and enforce a printed plan for the extension of the town, with reference to those buildings already commenced, those in the suburbs, and those to be built in the next twenty years. There should be a careful arrangement of streets and plantations, public lavatories, protection against floods, water supply, lighting, and means of communication, to be carried out by the municipality if private enterprise was not sufficient, in order to make sure of a constant extension of building land suitable and ready to be built upon, and thus to prevent any encroachments on the existing space. He also suggested an exchange of land so as to formulate these improvements, and proceeded to lay down a code of building by-laws which ought to be strictly enforced.

THE CONTROL OF THE CONSTRUCTION OF DWELLING-HOUSES.

Mr. Thomas Blashill, superintending architect to the London County Council, in a paper on this subject, sketched the chief structural conditions of a habitable building which are recognised as being necessary for its healthy occupation, including the drainage of the subsoil and exclusion of its air from the dwelling; the use of good materials for building; ventilation and lighting, and the removal of refuse. He proceeded to explain the building regulations now in force in London, and applicable to each of these structural conditions. In many respects Mr. Blashill showed the Metropolitan Acts are very defective; thus they made no provision for the drainage of a naturally damp site, the 6in. layer of concrete required on most sites was of little practical utility, and the exception of sites of "gravel, sand, or natural virgin soil" was very unfortunate. Again, the Metropolitan By-laws were silent as to ventilation under the the wooden floors of the lowest story; but he had long been convinced that there ought to be no wooden floors of the ordinary construction in the lowest story of a house, and no space, ventilated or unventilated. The air-inlets were invariably stopped up to prevent cold and draughts, and, at the best, the space must be a means of introducing stagnant or ground air into a house. If brick or stone paving would be too cold, floor-boards 1¼in. thick, Burnettised or Kyanised, might be nailed to narrow fillets embedded in the concrete about 3ft. apart, or they might be nailed to a layer of coke breeze and cement concrete, or the ordinary wood flooring blocks might be used. Thus the cost of excavation and of floor timbers would be saved, and a solid impervious floor obtained. The burnt bricks and bad mortar permitted the passage of moisture through walls. Mortar and plaster mixed with putrid or earthy matter increased this mischief and polluted the air. The London County Council General Powers Act, 1890, gave power to the Council to regulate the composition of plaster, which hitherto could be made chiefly of foul road scrapings or garden mould. The materials demanded would be generally similar to those required for mortar. The provision of a damp-course near the base of a wall was most important; but under the Metropolitan By-laws there was in external walls no provision against the passage of damp at the level of the ground or below that level. The Model By-laws of the Local Government Board suggested that the cavity should extend to 6in. above the surface of the ground, and even that was hardly enough to provide against the splashing of rain. It would not be very unreasonable to demand that the whole of the lowest part of the wall, up to a height of 12in. above the ground, should be built of hard bricks bedded in cement mortar. There did not appear to be any legal authority at present for demanding a dry area, or even an external coating for the protection of the lower part of a wall, these matters not forming part of the "wall." The provision of open space secured by the Metropolitan Amendment Building Act of 1882 was marred by the fact that it was permitted to cover the whole of the open area with buildings not higher than the ceiling of the ground-floor story of the main structure, and in many cases this by-law was very inadequate. The Model By-laws fixed the size of the open space as a minimum of 150sq.ft., but increased the area in proportion to the height and length of the house. These by-laws also enforced open spaces in front of dwelling-houses, and a similar result was obtained by the Metropolitan Regulations, which fixed the widths of streets and the heights of buildings. These Model By-laws also demanded that every room should have a window measuring one-tenth of the area of the floor, and one-half of it should open so that the opening extended to the top; this window must overlook an open space. The building regulations adopted by the London County Council for artisans' dwellings that were built upon the land which it had to devote to that purpose, indicated the views of that body as to the proper sizes of dwelling-rooms for the lowest class of the population that inhabited separate tenements. The assumption was that the average population would be two persons per room, and the standard height of rooms was to be 9ft. A one-roomed dwelling was not to be of a less area than 144sq.ft.; in a two-roomed dwelling the additional room was to measure at least 96ft. square; and in a three-roomed dwelling the third floor was also to be of this size. Basement rooms were not to be sunk more than 3ft. below the adjoining pavement, and waterclosets were not to be immediately accessible from dwelling-rooms. The closets were, in those dwellings, generally so arranged

with regard to the scullery that a current of air would pass to the other rooms through the scullery, and not through the closet. The Model By-laws provided that the closet should adjoin an external wall, and should have a window measuring 2ft by 1ft., also a ventilating air-brick or air-shaft; but no regulations would secure these contrivances from being stopped up by the occupiers. It was, he held, a source of evil to assume that a watercloset must be a foul place, and to trust to remedial precautions which, in practice, would never be taken. A closet should, by its construction, be rendered so free from impure air, that nothing beyond a window should be necessary to keep it sweet. There were in the metropolis no very precise regulations for getting liquid refuse into the drain; but by-laws were now, the author intimated, under consideration. The Model By-laws required that the soil-pipe from a closet or slop-sink should be fixed outside a house, and shall be thoroughly ventilated. The waste-pipe from a bath, lavatory, or ordinary sink must discharge outside the building over a channel leading to a trapped gully 18in. distant. But there was no provision for a trap under the sink, which was necessary, and there was no satisfactory provision for the trap which forms part of the closet apparatus. An earth-closet had to be lighted and ventilated, as in the case of a watercloset; but he thought no earth-closet should be permitted within a building, though with proper arrangements it might be placed close to a building. In conclusion, Mr. Blashill said the structural conditions of a healthy house do not appear to be numerous, but they are exceedingly difficult to define, so that they can be clearly understood and enforced by law. It ought not to be possible to build a house in which the conditions necessary to healthy occupation are violated. Indeed, this can be prevented where the model by-laws are in operation, which forbid the occupation of a house until it has been certified to be fit for human occupation. But if this care is necessary in a new house, its necessity can hardly be disputed in the case of old houses, where the conditions are notoriously unsatisfactory. It has been proposed to bring these houses gradually under inspection by fixing a period after which the public authority will be authorised to inspect and order the amendment of defects. This is a matter which, both as to regulations and as to inspection, will demand the greatest care and caution. If it is established, it should apply to all houses without distinction of size or of the class of their occupiers, so that the whole population, the interest of which, as regards health, is common and cannot be divided, should be protected by public law from evils over which individuals can have but little control.

HYGIENE OF GROUPS OF DWELLINGS AT LOW RENTALS.

M. Charles Lucas, architect, of Paris, observed that while the effort to unite habitations of various classes, such as houses in flats and small houses for not more than one or two families each, demanded a special study of the hygienic conditions under which they could be grouped together; the architect ought not to overlook the possibility of giving a certain picturesque charm to the whole group, and should also take into account every means of realising the economy of construction to be obtained from combination of such dwellings into one group. He regarded it as desirable that local industrial quarters should have some public buildings reserved for the inhabitants of the quarters thus created, making the assemblage of houses at low rentals a special quarter of a town.

THE HEATING OF TOWNS BY STEAM FROM CENTRAL STATIONS.

Mr. S. M. Burroughs pointed out the advantages of substituting for the usual fireplaces and gratings a steam heating apparatus, the steam to be supplied from central stations—a plan that had already been tried successfully in the United States. He summarised its advantages as (1) The smoke annoyance could be entirely abolished, as smoke-consuming appliances could be employed in the large furnaces at the central stations; (2) An economy of heat could be secured; the steam pipes could be placed underground, covered with a non-conducting substance; (3) Danger of fire was considerably decreased; (4) Dust and dirt from fireplaces and stoves could be entirely avoided; (5) A great economy of labour secured; (6) The temperature could be more easily regulated than by the usual methods.

THE EDUCATION OF PLUMBERS.

A special meeting was held on Tuesday afternoon for discussion on the education and registration of plumbers in relation to public health. Sir Douglas Galton took the chair. The attendance included representatives from Birmingham, Bradford, Brighton, Bristol, Cardiff, Hull, Leeds, Leicester, Lincoln, Liverpool, Manchester, Newcastle, Nottingham, Plymouth, Sheffield, Southampton, Swansea, Aberdeen, Dumfries, Dundee, Edinburgh, Glasgow, Inverness, Belfast, Cork, and Dublin. The Master of the Company of Plumbers announced that a Bill had been prepared for presentation next Session, for the purpose of creating a general representative council which should be invested with the necessary powers to determine the qualification and regulate the practice of those plumbers who were registered, in order that the public might distinguish as to responsible men. The Lord Provost of Edinburgh then proposed a resolution in favour of an efficient system of registration as essential to the protection and preservation of health. After discussion the motion was adopted.

Professor Emile Trélat, of Paris, gave, on Wednesday, an address on

THE HYGIENIC COMPOSITION OF WALLS OF DWELLINGS.

He made a critical examination of the composition of exterior walls, with special reference to the tendency of usual practice in this matter. The hygienic function of the walls of dwellings was defined as a complex one, and one which should tend simultaneously to produce the following results: (1) The walls should protect the interior from the variations of the external atmosphere; (2) they should be impenetrable to infectious influences arising from the vital functions of the occupants. In order to obtain perfect isolation of the interior of a house, it would be necessary for the wall to be such that the time needed for the transmission of heat from one face of the wall to the other should be long enough to prevent the external temperature, with all its variations, ever being able to modify that constancy of temperature which hygiene required on the interior face. Although a movement backwards and forwards was produced under the influence of the incessant variations of the external atmosphere in the matter composing the wall, it ought never to reach its interior face. A wall of this nature would need a capacity of isolation varying according to the latitude. Our modern constructions were subjected to economic conditions, which had more and more reduced the thickness of walls in dwellings, and their capacity of isolation had become very small. This was a disadvantage the importance of which ought to be realised, and which the hygienic comfort of habitations required that we should remedy. Another point to be considered was that all emanations of indoor life were causes of infection in the inclosing walls. Walls threatened to become receptacles of infection when they had contained for a long period the gases and effluvia which emanated from our bodies. The materials of which walls were constituted were more or less liable to be impregnated with and to retain these effluvia. A second problem to be solved was: Were we to choose materials for the construction of the walls of dwellings which were easily penetrable by gases, or should we, on the contrary, give the preference to impenetrable materials?

PILE FOUNDATIONS IN MARSHY LANDS.

Mr. P. J. H. Cuyper, of Amsterdam, gave a short description, on Wednesday, of the mode houses are built on piles in the marshy grounds of Holland and Friesland, and showed that most care has to be taken that every part of the pile shall be continually below the water level to insure stability. The hygienic conditions for basements and cellars built on a wooden foundation were that the foundation of the walls must be laid underneath the water level, the floor or pavement must be above the highest water level. In case the floor was situated lower than the water level, the pavement and walls should be waterproof in construction. A quite different method of constructing cellars was used when they were made independent of the surrounding walls, and built by masonry in a floating basin.

THE SANITATION OF THEATRES.

Dr. Lennox Browne read a paper on this topic, illustrated by a dozen diagrams prepared and explained by Mr. Ernest Turner, F.R.I.B.A. secretary to this section, showing the actu conditions found in some of the theatres in spected. The authors pointed out that whi much attention was now bestowed on the pr tection of theatre audiences, many gra structural defects were still to be found in th sanitary arrangements, both in the auditoriu and behind the scenes. The isolation of a theat from adjoining buildings was disregarded, an also the proper ventilation of rooms, the mutu protection of both the theatres and the contiguou tenements in case of fire. The disadvantag arising from a theatre being built below the lev of the street, with especial reference to ventilatio and drainage, were dwelt upon. The dressin rooms were often quite inadequate and fault alike in situation, in air space, in ventilation, the number of windows, and in water suppl Water-closets and urinals were frequently place in improper situations, bad forms were used, an sometimes the workmanship was at fault. The were often ventilated into dressing-room refreshment-rooms, lobbies, staircases, and eve on to the stage. Ventilation was frequent unprovided for in rooms behind the scene Even with the best forms of ventilation, th source from which the "fresh" air was obtain was often impure. Dr. Browne gave the resul of visits of inspectors paid to twenty Londo theatres, many of them quite new, and all which contained structural defects in sanitatio He suggested that the authorities should recog nise the necessity for framing regulations f the sanitary arrangements of theatres and mus halls, and should make their periodic inspectio to this end of no less importance than that of th prevention of fire.

FOUR-INCH DRAINS *v.* SIX-INCH DRAINS.

Mr. G. M. Lawford, Assoc.M.Inst.C.E., in paper on this subject, said it was a matter everyday occurrence to find a 6in. pipe used f the drainage of a single house, and this size w usually made compulsory by sanitary authoritie whether metropolitan, urban, or rural. As house drain was frequently dry for several hou at a time, it was obvious that where pipes of th diameter were used there must be a considera extent of surface on which sediment was d posited, and during the periods of minimum flo this deposit would decompose and foul gases wou be generated. If the house drain was proper disconnected from the main sewer, and efficient ventilated, a large proportion of these ga would be liberated in the atmosphere, but th tendency of the remainder would move in th direction of the house by reason of the absorpti influence of the warmer air within. This gener tion of gases in the house drain, apart from being adverse to the principles of sanitation, w preventible, the remedy lying in the use smaller pipes. Taking as an example the case an ordinary-sized town house, with an average ten inhabitants, 25 gallons per hour would be t maximum flow to be provided for. To th amount should be added the rainfall from th roof and areas. Allowing for 1¼in. of rainf per hour (thus providing for the heavi thunderstorms), the total volume of rainf to be dealt with would be 3,900 gallons p hour. The maximum hourly discharge of se age and rainfall combined would therefore 3,925 gallons, or 65·4 gallons per minu and a 4in. pipe would discharge this amou when running full at the very flat gradient 1 in 207·36, the velocity produced being 2·02 per second, which was barely sufficient to ma a drain self-cleansing. As such a flow was ot likely to occur during an exceptionally sev thunderstorm, without special arrangements flushing, even a 4in. drain could scarcely be ma absolutely self-cleansing, more particularly the usual gradient was from 1 in 40 to 1 in with a consequent increase of discharging cap city. Under ordinary circumstances, therefo a 4in. drain was ample for an average si house, and a 6in. drain was too large to be k free from deposit, more particularly as majority of the pipes discharging into it w 3in. or less in diameter. Baths, lavatories, a sinks never had waste-pipes exceeding 2 internal diameter, and it was the exception find more than one appliance being discharged a time. The question, therefore, naturally ar "How could a 2in. pipe possibly flush and clea a pipe nine times its own sectional area?" Th soil-pipe was the only pipe of larger size wh ever discharged at full bore, and the amount d

rged at one time (two or three gallons at the it) was insufficient to make a 4in. horizontal in run even half-full for more than a few feet. omatic flushing was of the greatest assistance eeping a drain free from deposit, and should dopted in all cases where possible, and more ticularly in cases where, from the depth of the n sewer, the inclination of the house-drain eeded 1 in 60. A tank containing not less than gallons was sufficient to cleanse a 4in. drain by ns of a 2in. siphon and flushing-pipe, and it uld be placed at the extreme end or head of drain, at least 6ft. above the latter point. using a 4in. drain laid at a uniform inclina- not exceeding 1 in 60, aided by automatic hing, all refuse and other matters discharged it could be removed in the shortest time and h the minimum of deposit. The removal of tructions could be provided for by making ry length of drain accessible from inspection mbers. Another argument in favour of the pipe was the increased circulation of air in drain, as by diminishing the sectional area the passage, the velocity of the air current considerably accelerated; the volume of air ch had to be set in motion in order to produce ulation in a 6in. pipe being more than double 24 times) the volume in a 4in. pipe. Gases erated in a 4in. drain would certainly be ried away more quickly than in a 6in. drain, rt from the fact previously stated that the ibility of the creation of such gases in a 4in. n is reduced to a minimum, while in a 6in. n their existence is an absolute certainty. marising his points, Mr. Lawford said the ction to a 6in. drain was the fact that deposits t be formed from which noxious gases were erated, with the probability of contaminating air in the house, while the advantages of a drain were:—(1) Deposit was reduced to a imum; (2) its size was ample for the dis- rge of the greatest amount of waste and rain- er that could possibly pass into it; (3) when bined with automatic flushing at regular rvals, absolute cleansing was obtained; and the increased strength of the air currents and consequential more effectual and rapid ification of the drain.

COMMON LODGING-HOUSES.

Mr. Percival Gordon Smith, F.R.I.B.A., itect to the Local Government Board, in aper read yesterday (Thursday), explained t the term did not apply to the model sans' dwellings, nor to seamen's homes pro- ed under the Fishing Boats Act of 1883, nor ight refuges. Its definition depended largely the circumstances of occupation. Since 1875 mon lodging-houses in the provinces were ervised and controlled under the provisions the Public Health Act; but in London the ice still controlled these establishments. The unt of wall space per lodger (300ft.) was less England than was demanded in corresponding ses in Berlin or Paris; but he did not advo- e an increase. The memoranda issued by the al Government Board for the guidance of vincial sanitary authorities were explained.

TAGE HOMES FOR THE INDUSTRIAL CLASSES IN THE METROPOLIS.

Mr. Rowland Plumbe, F.R.I.B.A., architect the Artisans' Dwellings Company, in a paper this subject, urged that efforts should be le to prevent concentration of industrial homes the central crowded districts of the metro- is, and to induce the industrial classes to live, ere possible, in cottages in the suburbs. He ngly advocated the mixing of classes, as far possible, in new districts, and described the l village for industrial classes, giving sug- tions as to its development and manage- nt. The site should be laid out with e and well-made roads and footways, ich should be planted with trees, and made as ractive as possible. The drainage and sanitary angements should, of course, be perfect; each ne should be self-contained, and should be ght, cheerful, well arranged, commodious, and lthy, the houses well set back from the public tway, with gardens in front and a good drying und in the rear, which could also be laid out an additional garden or recreation ground. e houses should be varied in plan and accom- dation to suit the habits of all the classes, and the different-sized families likely to occupy m. They should be substantially built, and ry sanitary requirement should be provided. ey should be decorated and finished in a pleasing manner to suit the best taste of the occupants, and a general air of comfort, bright- ness, cleanliness, and cheerfulness should be given to them, as also to the estate generally. Open spaces for recreation and for garden allot- ments should be provided. Pressure should be brought to bear upon the local authorities so that the provisions of the Education Act, the Baths and Wash Houses Act, the Public Libraries Act, and all other beneficial legislation of a like character should be carried out, and suitable buildings for the same should be provided. Churches, parish rooms, public board schools, polytechnic institutes, coffee taverns, and clubs of all kinds should also be provided; a sufficient provision of shops should likewise be built in suitable positions, and the question of public- house accommodation should also be most care- fully considered, and (if provided) not placed in positions likely to create discomfort and dis- order. The classes of people inhabiting such estates should pay weekly rents, at least one week in advance. The inhabitants should be encouraged to invest small amounts in the capital of the company. Houses should not be sold to individuals, as in that case abuses at once sprang up; but the whole estate should be owned and managed by one company, the tenants being shareholders wherever possible. The inhabitants should be encouraged to take an interest in the maintenance of the company's property, and forms should be provided on which should be stated any want of repair or other matter re- quiring attention; these should be left at the estate office, and a staff should be appointed to attend to the same. The company should main- tain and manage a proper staff of officials and workmen to attend to all matters of repair and maintenance. It should be established on a proper business footing, and financially it should be so managed as to pay a remunerative rate of interest—say 5 per cent.—to its investors. Mr. Plumbe proceeded to describe, with the aid of plans and designs, Noel Park, a village which has been laid out under his superintendence and from his designs. He mentioned that over 1,300 houses had been built (out of 2,500 proposed) on the estate of 100 acres, which had, for the past half-year, a death rate of 14·41 per 1,000. An average of 25 houses per acre were built upon the estate, including space for roads, and the population was the rate of about seven people per house, so that when it is completed it will contain a population of about 17,500. There will then be over five miles of roads and streets formed. The outlay, including the land, up to the present time has been about £460,000, and the net income is now about £21,000, so that the estate (though only about half-developed) already pays over 4½ per cent.

ENGINEERING AND HYGIENE.

The section devoted to engineering in relation to hygiene met on Tuesday under the presidency of Sir John Coode, who alluded to the progress of sanitary legislation. Whilst admitting that great benefits had accrued from the extensive drainage works which had been executed, and the large expenditure that had been incurred for improving the health of London, it could not yet be said that all had been accomplished which might be done in this direction. Nor would it be possible to say as much as long as the sewage of the metropolis was allowed to flow into any part of the Thames without previous purification by the most perfect method as yet known—i.e., by being filtered through land. The only alternative would seem to be the conveyance of the sewage to the sea coast beyond the mouth of the estuary of the Thames. Nevertheless, and not- withstanding the room which existed for further improvement in the disposal of its sewage, the reduction which had been brought about in the death-rate of London in modern times was as noteworthy as it was satisfactory.

THE REMOVAL OF SEWAGE AFTER LEAVING BUILDINGS.

Mr. Reginald E. Middleton, M.Inst.C.E., said that the increase in the size of towns had necessitated the transportation of sewage to much greater distances than was formerly thought re- quisite, entailing in turn increased cost when sewage and storm-water were mixed, and this had stimulated inquiry as to the possibility of dealing with sewage in a more economical way. Such inquiry had led to the trial of the earth, the pail, the closed cesspit, and the separate systems. The four systems were criticised in detail. The advantages of the separate system were catalogued, and though the author ad- mitted that practical difficulties existed which militated against its adoption, these were not insurmountable, and it offered so many facilities for the economical disposal of sewage, that the objection to its use, with one exception, almost, if not entirely, disappeared. The exception was that the adoption of the separate system neces- sitated the turning of the washings from houses, streets, and yards into the nearest watercourse, and he was not prepared to claim that such a course of action was absolutely safe. In many cases the use of compressed air for lifting sewage was more economical than either water or steam.

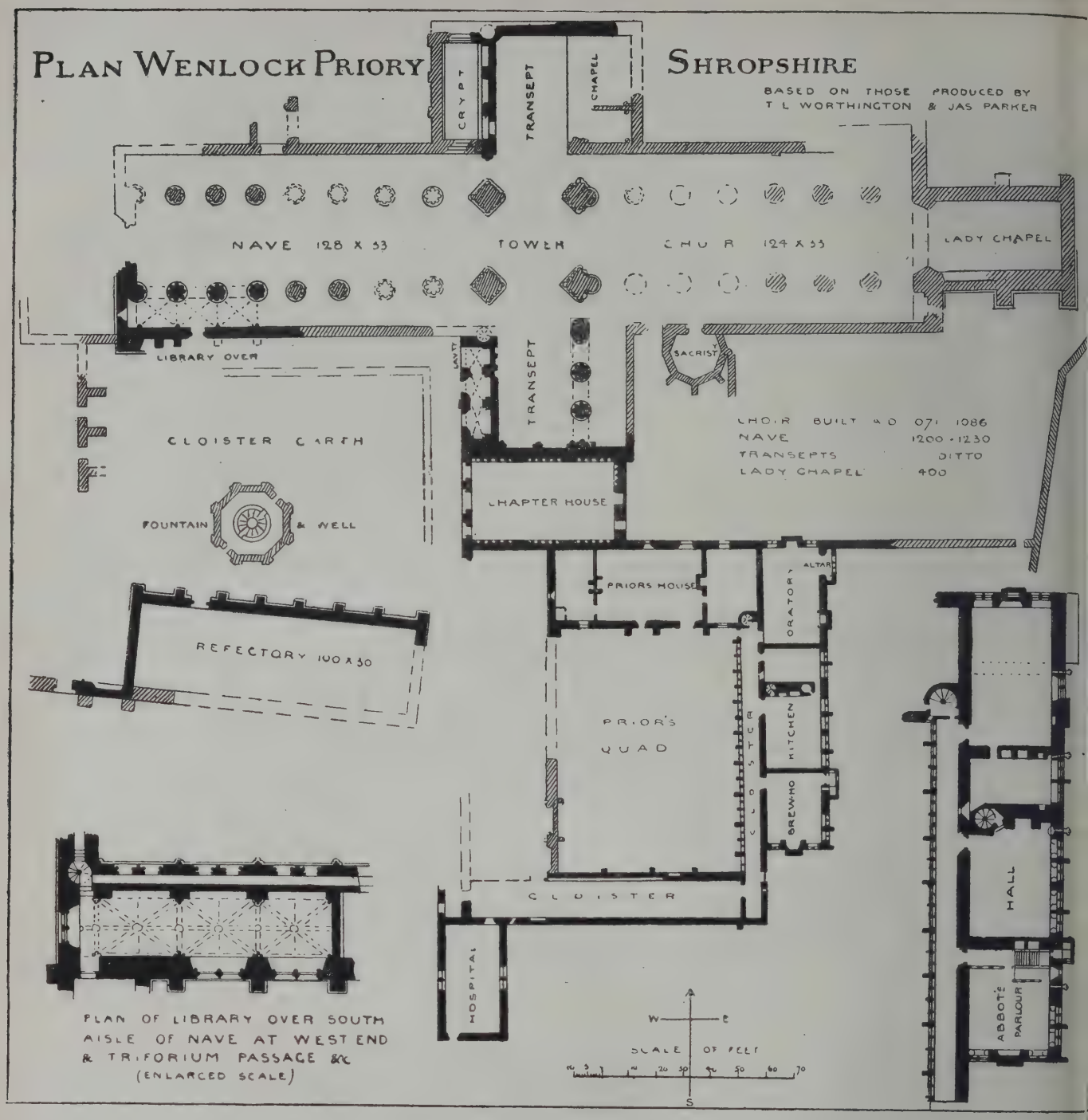
WATER SUPPLY.

Mr. A. R. Binnie, chief engineer to the London County Council, read a paper on "Water Supply." There were two facts of which they might be confident—first, that water subject to pollution was a very potent factor in the spread of disease; and, secondly, that there was possibly no better mode of intro- ducing into the human system any substance which it could absorb than by drinking it in the form of a solution. This being the case, it almost followed as a natural consequence that the utmost care should be taken to guard our supplies of drinking water from contamination. Wells were frequent sources of death and disease, due to the contamination from house-drains. Chemical science in many cases was of little assistance, as it was powerless to detect the germs of disease. Neither filtration through sand nor the precipi- tation and clarification of sewage effluent by chemical agency could be altogether relied on.

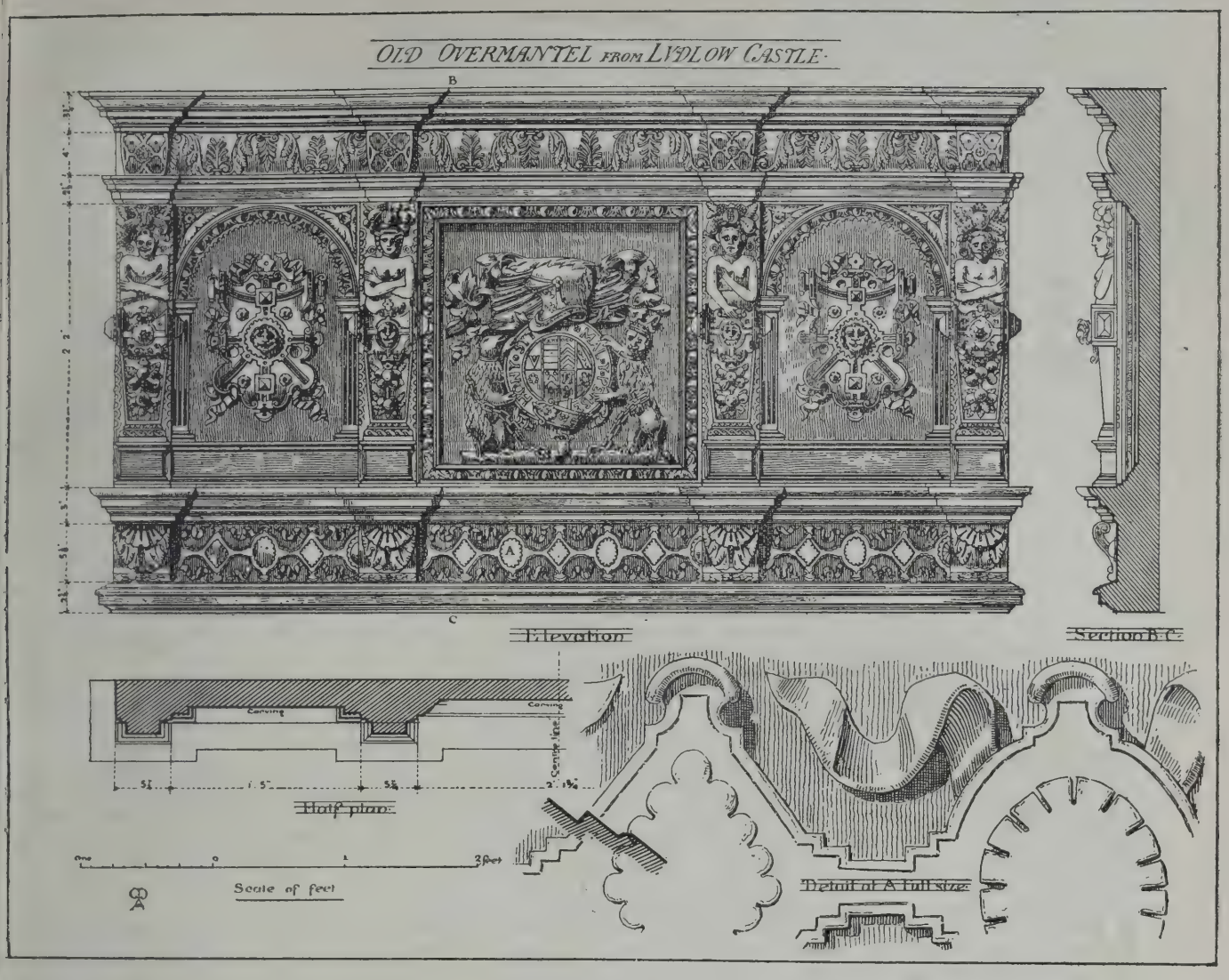
The architectural papers to be read to-day (Friday) include "English Isolation Hospitals," by Dr. R. Thorne Thorne, of the Local Government Board; "Description of the Heathcote Hospital, Leamington," by its architect, Mr. Keith D. Young; "Temporary Local Isolation Hospitals as opposed to a Central Hospital," by the Rev. C. E. Few, vicar of Seal, Sevenoaks; "Hospital Tents and Huts," by Dr. Duchausoy; and "Asylum Arrangement and Construction," by Dr. Richard Greene and Mr. G. T. Hine, F.R.I.B.A. To-morrow (Saturday) will be devoted to excursions, and on Monday the closing meeting of the Congress will be held in the theatre of London University.

ARCHITECTURAL ASSOCIATION EXCURSION IN SHROPSHIRE.—No. II.

THE proceedings of this excursion commenced last Monday. Before describing the places visited in the exact order of the programme, we will refer to our illustrations to-day, which show some of the buildings seen during the week. Last Friday we illustrated and described Stokeley Castle, seen yesterday, on which occasion *Ludlow* was visited. Beyond compare for the sylvan beauty of its grand position, and first among the foremost of the military strong- holds of the Middle Marches of Wales, the his- toric castle at Ludlow has always been the glory of the great border district of Shropshire since the time when Roger de Montgomery built it, soon after the Conquest. As a notable specimen of military, palatial, and to some extent eccle- siastical architecture, the buildings even now are of the greatest interest to the practical architect, while, of course, to the antiquary its historic associations present attractions of the highest order. Eyton has told us its earlier history, and Wright has elaborated the pages of later times, leaving to G. T. Clark the task of describing in exact detail the military particulars of the fabric itself. The castle stands crowning the old town of Ludlow on a rocky promontory, which projects at a height of above 100ft. over the union of the Corve with the Teme. Adjoin- ing the castle is the ancient cruciform Parish Church, with its lofty tower. The general enceinte of the place was formed by the town walls, fragments of which may still be seen, and a capital plan of the town published in Baker's book (issued by Mr. Woolley, of the Bull Ring), shows their exact extent very clearly. The castle is composed of an inner, middle, and outer ward. The inner ward occupies the south-west angle of the middle ward and is roughly rectangular some 66ft. E. and W. by 42ft. N. and S. The south wall divides it from the outer ward, and forms part of the general enceinte. This ward has three towers, the keep, the gatehouse, and the postern, at its S.E., S.W., and N.W. angles.



We give a plan which readily will explain these references. The accompanying view shows the keep and the gatehouse, which form part of the buildings erected against the Norman south curtain by Sir Henry Sydney, the preux chevalier of the days of Spenser and Raleigh. Along the north side of the middle ward is the grand mass of the state and domestic apartments, with the buttery tower, the great hall, square tower, and the rest. This block of buildings, which forms the chief feature of the castle, is of great height, and of lordly scale, in a quaint mixture of Norman and Decorated date. The kitchen is located against the wall of the inner ward, and in a central position of the middle ward stands the celebrated circular Norman chapel, attributed to Jocelyn de Dinan (1130-1135), and dedicated to St. Mary Magdalen. It is now denuded of its chancel, which formerly abutted upon the curtain, as shown by the dotted lines on our plan. This chancel was standing in the reign of Charles II., and the large chancel arch remaias still. The Norman W. doorway arch to the chapel is a specially rich and handsome example. The nave is 28ft. in diameter, with walls 4ft. thick, and arcaded inside. In the outer ward only a few buildings remain standing. The centre of its curtain is occupied by the outer gatehouse, and on its south are some Tudor buildings intended for stabling. The Early square tower on the east wall marks the extent of the Norman Castle. Mortimer's tower, rising on the west side of the ward, is semicircular on plan, and overlooks the river. It is Early English in style, and here Hugh Mortimer was imprisoned, they say, about 1150. The building looks later than this period, but that is a minor detail. It has additions of Tudor date. A public footpath runs through a portion of the outer ward, where a part is walled off, and the two modern doorways cut in the curtain show clearly its thickness. From this point a second slope of some 60ft. leads down to the meadows below where the streams, stilled by the mill-weirs lower down, flow sluggishly along. The noble trees which enhance the grounds and form the avenue were planted by the Countess of Powis in 1772. At the north-west corner is a group of towers forming the angle, and containing the buttery. The first has a rectangular projection, and connected with this is a second tower half-octagon on plan, much patched and added to. This group, rising from a battered base, is very lofty. The private apartments are of Decorated date. In the garderobe tower base are three large Perpendicular windows of two lights with tracery, and above are the timbers of two balconies. The keep stands on the higher part of the inner ward, and being placed upon the enceinte formed part of the general line of defence. Its original plan is peculiar, in that it had two projections or ea and so was slightly T-shaped, and had commu cations right and left through the arms of the with the curtain wall on which it stood, so th this unusual exception to the jealousy wi which the entrances to Norman keeps we guarded, rendered the building rather a lar mural tower than a keep proper. Roger de La built it between 1086 and 1096, and it had a hi pitched gable-roof, like the gatehouse at Sherbor Castle; but the side walls probably were nea as high as the gables, to conceal the roof. T postern tower is spiked up, and inaccessible. T middle ward is the most important division the castle, and we have already referred to buildings in general terms. The hall is a nol one, though roofless now and without a floor. is 60ft. long and 30ft. broad, and 35ft. to t corbels which supported the hammer-beam roof timbers. The three windows overlooki the courtyard are trefoiled, and have transon One only has a stone seat. The middle one h been blocked up by a Tudor fireplace. No dou the original grate, as at Stokesay a Penshurst, stood in the central space the hall. The buttery tower comes ne to the hall. The state rooms at the oth end contain much to interest the archite although they are very considerably ruined. T stone hooded fireplaces are very good, and t



windows, of varied dates, contain remains of good detail. The gatehouse is approached from the middle ward by a bridge over the ditch. In the wall above the low pointed arch, on a tablet, are the arms of Elizabeth and those of Sir Henry Sydney, of Penshurst, with the date 1581. There is no portcullis. Probably the original entrance was by a mere archway in the curtain, as at Kenilworth and Bridgenorth. In Tudor times Ludlow Castle, originally a purely Norman fortress, was converted into a palace for the Presidents of the Marches, Sir Henry Sydney being the first official of that style. The base of the keep became a prison, and afterwards, when the extinction of the Council of Wales took place, followed by the Civil Wars, a stop was put to any outlay on the place, which soon became pillaged of all kinds of fittings in lead, iron, or timber, until it presented a complete ruin. The final collapse came in George I. reign, when the lead from the roof was removed; but many of the rooms remained entire so late as 1774. In 1811 the Powis family purchased the freehold from the Crown. The visitor may lift the latch boldly at the postern—there is no warder now to challenge—and enter the outer court. The view alone will repay a climb to the topmost height of the castle, and the place is well kept and cared for. We print two details of Elizabethan fireplace fronts from Ludlow, drawn by Mr. Arthur Marshall, and among our lithographic plates will be found a view of the keep, seen over the moat from the outer ward. In the corner is a plan of the castle; with a reference table. The other lithographic plate includes a capital photograph of the market-house at Shrewsbury and some old houses in the town. Many of these old houses are very much modernised, and all are overladen with black mastic or paint. Some are greatly shams in what has been called the half-brick timber style, with timber lines painted over the brick walling. Elsich House, drawn on the other plate, is a stone house, near Ludlow, with an octagonal timber bay characteristic of the district, simple, quiet, and unassuming—all qualities of great value in good architecture. Moreton Corbet we shall refer to next week.

Wroxeter Church, first seen on Monday, is chiefly Norman, and principally worthy of a visit on account of its uncommon Renaissance altar-tombs, the recumbent statues of which are remarkable for the freshness of their colouring and ornamentation. So accurate are these alabaster figures as studies of costume, that their details exactly show the several details of contemporary fashion. Thus, the ladies' shoes vary. In the earliest of the three tombs the toes are square and broad, in the next they are pointed in the shoe, and in the third high heels, then in vogue, are added. The western tower of the church is of fine outline, and has a singular patchwork character, with bits of various dated ornament and carving built in. A very poor south porch has lately been added. The two pillars at the churchyard-gate are of Roman date, and were found in the neighbouring river some years since. The ruins of Ur-i-conium were visited, when the hypocaust was seen, the Roman walling and the mosaic pavement, so wonderfully preserved, at the end of the inclosure, once occupied by the Chalcidicum attached to the Basilica. The interest and importance of these remains is, of course, very great, and the coins, glass, pottery, Samian ware, and fibulæ found here have been considerable, both in number and variety.

Buildwas Abbey, next seen, was a cruciform building, founded by Cistercian monks between 1135 and 1160, and erected by Bishop Roger de Clinton, of Chester, on the site of an older establishment, occupied by a Bishop of Lichfield. The remains now comprise a good part of the walls of the church and the groined chapter-house. Rickman gives a brief account of it, comparing it to Kirkstall in the matter of its having round arches exteriorly and pointed arches within. The choir, in the common fashion, was erected first, and the work generally is very bold and severe in character. Over the parallelogramatic chapter-house, which is vaulted, was the dormitory at the easternmost boundary of the cloisters. The restored abbot's house contains the chapel and a large 13th-century hall, with a chestnut roof. There is no rich detail in the ruin, which is well situated on the banks of the Severn. If we remember rightly, the building was carefully measured up some years ago by Mr. W. Talbot Brown, who was awarded the R.I.B.A. medal for his work. The party walked some two miles and more through the fields and over the hill to *Benthall*. Here the church, a simple building erected in 1667, presents nothing within its externally whitewashed walls to detain the visitor; but the little church has a font of Roman origin, and the fabric and services seem admirably well cared for.

Benthall Hall, for some years the residence of Mr. Maw, of encaustic-tile celebrity, and now in course of painting and renovation, is an Elizabethan house of 1535. It did not improve the house to introduce the incongruous tiles of all colours with which Mr. Maw lined the entrance and paved the great hall. The stone-built garden front has two big semi-octagonal bays of handsome proportions, and a square one, possibly of later date, between them. This forms the entry. The sky-line is composed of three small gables, with larger ones of lean-to outline at the ends, an irregular composition of simple detail but effective in design. The chimneys are of brick. Inside the house the rooms are richly panelled, and have Jacobean florid chimney-pieces. There is a handsome Elizabethan staircase, much good furniture and some pictures, chiefly by the occupier, Mr. Bateman, who has exhibited some designs as an architect at the Academy, and showed the same to the excursionists.

Much Wenlock, though little more than a village, is justly celebrated for its great abbey, famous for riches, and renowned for temporal influence and historic associations. First a

nunnery where King Penda's grand-daughter, St. Milburgh, was buried. Lady Godiva of Coventry, in the days of Edward the Confessor, with her husband, Leofric, Earl of Mercia, chose the spot for a church; but in less than half a century one of the Conqueror's favourites obtained its disposal and founded the existing abbey in association with the Benedictine Abbey of Clugny, and erected the first part of the buildings. The Crown seized the place in Edward III.'s reign, and Richard II. proclaimed the Priory denizen, and henceforth it was independent of the foreign establishment. We publish herewith a plan of the main buildings as they now stand,* but the ruins, all told, include 30 acres. The south aisle, with the library over it, parts of the transepts, the chapter-house, and the abbot's house (now occupied by Mr. Gaskell as a country residence), may be described as being of 15th-century date. The excellence of the Early Transitional architecture represented by the Abbey Church is unquestioned. It was probably the work of Roger de Montgomery, of Ludlow Castle. The Perpendicular abbot's house, of which we to-day illustrate the plans (a detail of the cloister façade was printed in last week's BUILDING NEWS), has all the apartments opening into a cloister or gallery on both floors, and lighted by a row of closely-set windows cleverly grouped in bays between handsome buttresses. These openings were glazed about 30 years ago. In the Oratory is the old stone altar, situated in the bay recess, and having a carved stone reading-desk upon it (see "Glossary of Architecture," page 2). The abbots' hall upstairs, now used as a dining-room, has a good timber roof, with framed and cusped purlins. The deeply-recessed Mediæval windows, grouped in pairs, have curious octagonal brackets supported on shafts in lieu of the usual step seats, and they are too high to have been intended for such a use. The abbot's parlour, now a drawing-room, had a part screened off for a passage, with a staircase at the end of it leading to the room above. The doors are handsomely moulded with battlemented hoods, and the water drains and corbels are particularly worthy of notice. The building is unique in its way in England, though the same idea of a gallery was not uncommon in our old inns and taverns down to a late period. Last week we illustrated the Guildhall and the Gatehouse up the street.

Whitehall House, with its gatehouse and pigeon-cote, were visited at starting on Tuesday, and we give a view of the building among our plates to-day. The garden front is the best, as seen in the drawing. The detail of the building is simple enough, but the row of gables with the turret in the centre makes a good group.

Plaish Hall, erected in the reign of Henry VIII., with continuations of somewhat later date, is a small, but rich, brick-built house, akin to Compton Wyneates. It is situated several miles from Church Stretton Station, midst the hills, and commands a fine view. The house was added to somewhat cleverly some six or eight years ago by Mr. Charles Sayer, the architect, son of the owner. The hall is very good, and has an Elizabethan hammer-beamed roof, with bold arched timbers to the principals, a trifle incongruous in scale. It is partly ceiled, and has a florid screen of this date—or rather, later—at one end in the usual fashion of the period. There is much rare old furniture in the house. The oak parlour is a good room, with a handsome inlaid chimney-piece and an exceedingly rich cast-iron hob grate, with panels of Scriptural subjects well, but quaintly, modelled. The ironwork in the house is old, and worthy of note. Outside the tintings of the walls and the stone slate-covered roofs combine to make a first-rate study of colour. To the rear side two octagonal turrets containing staircases run up, and are surmounted with ogee lead-covered roofs of not very happy contour. These are new. The cut-brick chimneys are among the chief features of the house.

Shipton Hall is a work of about the year 1589, with parts dated 1670, and during the end of the last century the interior was denuded and transformed in a coarse style of Classical taste, so as to be now devoid of interest. The house stands well up above the road on a terrace raised by a series of three sets of steps, and has an inclosed forecourt garden very prettily set out and planned. The building is very plain in detail, and has a square tower over the entry, the front doorway being, as at Benthall, placed on one side of it in the return face. A large group of stable buildings in a Georgian mode stand to the right hand of the approach to the house, and are excessively commonplace and poor. The church hard by was rebuilt and altered in 1589, when the chancel wall was opened out on either side of the chancel arch, and so there are now three arches, one large and two small, opening into the nave. The square western tower has a timber belfry and a conical spire. In the church are some rich incised slabs to the Mytton family, and a painted heraldic one in a frame supported by a queer piece of ironwork. The church is fairly clean; but the churchyard is in a disgraceful state. Mr. John L. Robinson, A.R.H.A., of Dublin, took a group of the party in front of Shipton Hall, and Tuesday's proceedings were concluded by a railway journey back to Shrewsbury, where the excursionists made for their hospitable quarters, the George Hotel.

* The parts indicated in black are complete, the parts hatched are above the ground level, and the outlines show conjectural parts.

BOOKS RECEIVED.

Concrete: its use in Building and the Construction of Concrete Walls, Floors, &c., by THOMAS POTTER, illustrated, Vol. I. New Edition, rewritten (Winchester: *Hampshire Advertiser* Company), is a new edition of a very useful little treatise on concrete and its practical application to building. Mr. Potter is an authority on the subject well known to our readers, and his contributions on this valuable material to our own pages are still remembered. This little volume, published 14 years ago, has been rewritten and brought up to date, and contains practical information on the aggregates and matrices used, the making of concrete, concrete foundations, shrinkage of concrete, &c. The present volume does not enter into the question of concrete for architectural purposes, such as walls, lintels for openings, arches, domes, and other decorative features; but deals very fully with all necessary information respecting its composition and use. Mr. Potter's remarks on the "aggregates" suitable for concrete for particular uses are of value. Thus, he observes that while "crushed flint makes an excellent aggregate for wall construction," it is unsuitable for floors on account of its weight, its inelasticity, and its behaviour under heat. Thus for floors, firebrick or coke breeze aggregates are better, as they expand less under heat than flint. Slag, furnace clinker, and burnt clay are all good aggregates for floors, because they have been subjected to the action of fire. Old building materials, when broken up and crushed, make capital aggregates; and, as the author says, may often be economically employed for making concrete for foundations, basement pavings, and walls, instead of being carted away for road-making and filling, particularly on estates where new buildings are being erected on the sites of demolished ones. Mr. Potter recommends a "Blake" stone-crusher as being unsurpasssed for the purpose of crushing materials: it can be obtained from 1 man to 20H.P.; a 4H.P. machine is a convenient size for general use, and it will break 30 to 40 tons a day of any hard material. Of course, a crushed aggregate requires cleaning from dirt. Some useful experimental results are given, showing the tensile strength of cement when combined with different materials, and the crushing strength of concrete made with different aggregates. These show that Portland stone is a better aggregate than flint, ballast, or even pottery, and that a porous material and angularity of form are necessary qualities of aggregates. But a high compressive resistance may be often less necessary than cohesive strength. These conditions do not go together, so that discretion in the selection of a suitable aggregate is necessary. Many of the results are taken from Mr. Grant's experiments, the treatises of Pasley, Reid, and Kirkaldy. The various kinds and qualities of limes and cements as matrices are dealt with, and, as the author says, the improvements in burning and heating limestone and new cements have rendered obsolete much of the old practice. A useful summary of points to be observed in the use of Portland cement as a matrix is given on page 106, and the author gives a useful specification adopted by the late Metropolitan Board of Works, and also by the London County Council and the Forth Bridge engineers. Space renders it impossible to quote many useful remarks on the subject of concrete foundations. The volume will be found a practical guide to the architect and builder.——*The Stonemason and the Bricklayer*, by various practical writers, edited by the Editor of the *Industrial Self-Instructor*, with plates and illustrations in text (Ward, Lock, and Co.), is a comprehensive volume on the arts of masonry and bricklaying, including notes on the materials used. The volume is a reprint of a series of articles which have appeared in the *Industrial Self-Instructor*, published by Messrs. Ward, Lock, and Co., for home study. Every principle and technical requirement of the two trades are set out in a popular manner, and illustrated by numerous blocks in the text. Every kind of stone walling, rubble as well as tooled or dressed ashlar work, bond, ashlar and coursed rubble combined, details such as weathered and throated sills, joggled work, cramping and other means of uniting stone blocks, cornice construction, window mullions and heads, quoins, tracery, arches, foundations, are explained and illustrated. The same attention is bestowed on the bricklayer; the principle of bond is fully explained as far as it relates to walls and square angles, and the construction of simple arches. Ornamental brickwork is very summarily dismissed. The diagrams are numerous, and but for imperfect lettering in some cases, intelligible as far as they go, and the treatise will be found useful as a preparative study to more exact textbooks on the arts.——*The Transactions of the Edinburgh Architectural Association.* No. 3 of the first volume of these Proceedings has just been issued. It contains records of some of the visits made by the members during the session just closed, and also brief notes of visits paid to various buildings in 1884-5-6; the illustrations include Gosford House, as successively designed by the Brothers Adams, Wm. J. Barr, and Mr. William Young for the Earls of Wemyss and March; Wintoun House, built from the plans of William Wallace, master-mason to the King, c. 1620; Pencaitland Church; Fountainhall House, a Late 15th-century edifice; and Dundee Town-hall, one of the works of William Adam.

CHIPS.

A Sunday-school is about to be added to the Primitive Methodist Church at Blackhill, Benfield-side, co. Durham, from plans by Mr. Joseph Shields, of Sunderland.

Mr. James Brunton, builder, Jedburgh, has been appointed road surveyor for Jedburgh district, in room of Mr. M'Intyre, resigned.

In a report addressed to the Prefect of the Seine with regard to the municipal and other free libraries in Paris and the suburbs, it is stated that they now number 64, and that they are attached to the different town halls and communal schools.

A memorial stained-glass window has been placed in the south side of Pembroke Chapel, Clifton, Bristol. The subjects are Christ as the Light of the World, and as the Good Shepherd. Messrs. Joseph Bells and Sons, of College-green, Bristol, were the artists.

The rebuilding of Earl Portsmouth's house at Hurstbourne Park, near Andover, which was destroyed by fire last winter, is to be commenced in October. The new house, which is to be erected on the site of the former building, will be a comparatively small structure, in the Jacobean style.

Col. C. H. Luard, R.E., an inspector to the Local Government Board, held an inquiry at the Town Hall, Ripon, on Wednesday week, with respect to an application by the City Council for sanction to borrow £4,000 for the purposes of water supply. The £4,000 included the overdrawn balance £745, estimated cost of new service reservoir at Whitefields—for which plans and estimates had been prepared by the City surveyor and waterworks' manager—£2,900; land, boundary fence, compensation, &c., £300; contingencies, £54 15s. 8d. The service reservoir would contain about 750,000 gallons, or three days' supply for the city. The population of the city at the last census was 7,512.

A new organ, built by Mr. J. J. Binns, of Bramley, Leeds, was recently opened at Rawdon Wesleyan Chapel. The organ is in an oak case, and of Gothic design, with decorated front pipes. The cost of the new instrument is some £500.

The Stafford board of guardians have under consideration plans prepared by Mr. G. Wormal, a local architect, for new buildings and alterations at the workhouse. The plans provide for a new infirmary chapel, detached fever wards, and alterations to present buildings. The estimated cost is £4,000.

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ILLUSTRATIONS.

INTERIOR OF THE SELECTED DESIGN FOR THE NEW SOUTH KENSINGTON MUSEUM BUILDINGS BY MR. ASTON WEBB.—EXTERIOR OF MR. WILLIAM EMERSON'S DESIGN FOR THE NEW SOUTH KENSINGTON MUSEUM BUILDINGS.—ARCHITECTURAL ASSOCIATION EXCURSION SKETCHES IN SHROPSHIRE.—TOWER CHAMBERS, EASTCHEAP.

Our Illustrations.

SOUTH KENSINGTON MUSEUM BUILDINGS.

We give this week two illustrations—the first being a double-page sketch view, showing the interior of the entrance hall of the selected design by Mr. Aston Webb; and the second the exterior view of the design submitted by Mr. William Emerson. We should add that in our review last week of the competition drawings, we wrongly attributed "Verona" to Messrs. Deane and Son, and "ΤΕΧΝΗ ΤΥΧΗΝ ΕΣΤΕΡΞΕ ΚΑΙΤΥΗ ΤΕΧΝΗΝ" to Mr. W. Young. "Verona" is Mr. Young's design, and the other Messrs. Deane's. Of course, no names were appended to the designs exhibited, and we had to arrive at our own information as to the authorship, which turns out to have been right in each other instance. We are requested to state that the designs submitted in competition for the completion of the buildings of the South Kensington Museum are now on view at that Museum from 10 till 6.

ARCHITECTURAL ASSOCIATION EXCURSION SKETCHES.

We continue from last week our illustrations of the A.A. visit to Shropshire, now in progress. A full description of the buildings shown appears on p. 213.

At Friday's meeting of the County Council for Northumberland, a special committee appointed to consider the county architect's salary reported that from 1879 to 1890 the salary and commission had amounted to £520 per annum. The committee recommended that a fixed salary of £520 a year be paid, instead of salary and commission as hitherto, that the architect's travelling expenses be allowed him, and that the privilege of taking work other than county work be continued to him. The report was referred back to the committee.

At the Midland Railway meeting on Friday, the chairman, Mr. G. E. Paget, said that during the last ten years the company had spent over half a million sterling on the maintenance and renewal of bridges, but since the accident on the Brighton line, Mr. Macdonald, their engineer, had made a further report on the condition of their bridges, and he had reported that there was everywhere a large margin for safety. It was, however, intended to proceed with the reconstruction of the 181 cast-iron bridges, upon which they proposed to expend £85,000 in the present year. At the meeting of the Great Northern Company on Monday, Lord Colville dealt with the same subject of the reconstruction of railway bridges, and stated that for some years his company had been carrying out that work, and substituting steel and wrought iron for the original cast iron and timber. £10,000 had been devoted to this purpose during the past half-year.

THE SOCIETY OF ARCHITECTS' VISIT TO BELGIUM.

THE following is the final programme of the most interesting excursion to Belgium of the Society of Architects, which begins to-morrow. Several alterations have been necessary to meet the arrangements of the Institute of Architects of Belgium, which is interesting itself fraternally in the visit, and will at various points co-operate:—

Saturday, Aug. 15.—Train leaves Charing Cross (S.E.R.) at 10.0 a.m. Train leaves Cannon-street at 10 5 a.m. Boat leaves Dover Pier at 12.0 noon. All luggage must be labelled for Ostend at least ten minutes before the time of departure. Lunch on board the boat, not included in ticket. 4.0 p.m., arrive at Ostend. Attend audience to be granted by His Majesty The King of the Belgians. Dress clothes will have to be worn at the audience. Dressing-rooms will be provided at Hôtel du Kursaal et Beau Site. 6.30 p.m., dinner at Hôtel du Kursaal et Beau Site, Ostend. 8.44 p.m., train from Ostend Station to Bruges. 9.7 p.m., arrive at Bruges. Sleep at Grand Hôtel du Commerce, Bruges.

Sunday, Aug. 16.—Breakfast, lunch, and dinner at Grand Hôtel du Commerce, Bruges. English Church, Rue d'Ostende; services at 11 a.m. and 7 p.m.

Monday, Aug. 17.—8.30 a.m., breakfast at Grand Hôtel du Commerce, Bruges. 10.30 a.m., visit Hôtel de Ville (1376 to 1387). 2 p.m., lunch at Grand Hotel du Commerce. 3.30 p.m., visit Cathedral of St. Sauveur in the Grande Place (13 and 14 cys). Note: Other places worth seeing are the Church of Notre Dame (13th to 15th cys.) near Cathedral; a shop in the Rue St. Amand; the Tour des Halles (Adelaide Proctor's "Belfry of Bruges"); Houses in Rue de la Pierre and in the Square "Van Eyck." 6.3 p.m., leave Bruges for Ghent. 6.53 p.m., arrive at Ghent. 7.30 p.m., Dinner at Hôtel Royal, Ghent. Sleep at Hôtel Royal, Ghent.

Tuesday, Aug. 18.—8.30 a.m., breakfast at Hôtel Royal, Ghent. 10.30 a.m., visit to Cathedral of S. Bavon (Crypt 941, W. portions 1228, choir 1274 to 1300, rest 15th and 16th centuries). Met at door by M. Van Assche, cathedral architect. 12.0 a.m., visit the ruins of the Abbey of St. Bavon (several portions are primitive Roman work). 1.30 p.m., lunch at Hôtel Royal. 3.0 p.m., visit Hôtel de Ville, Rue Haut Port (1481-1553). [Note: Other places worth seeing are the old houses in the Marché du Vendredi, and on the Quay aux Herbes (Skipper House, 1531); the Oudenburg, where John of Gaunt was born in 1340; and the house of the Corporation des francs Bateliers (1669), pont du laitage; the Archæological Museum, Rue Longe des Pierres; the Château of the Counts of Flanders (12th Cy.), the Halle aux Draps, the Château of Gérard-le-Diable, and the Belfry.] 5 0 p.m., leave Ghent (Sud) for Antwerp. 6 29 p.m, arrive at Antwerp. 7.30 p.m, dinner at Hôtel St. Antoine, Antwerp. Sleep at Hôtel St. Antoine, Antwerp.

Wednesday, Aug. 19.—8.30 a.m., breakfast at Hôtel St. Antoine, Antwerp. 10.30 a.m., visit Hotel de Ville. 1.0 p.m., lunch at Hotel St. Antoine. 2.30 p.m., visit Cathedral (met by M. Baeckelmans, architect for restoration). 4.0 p.m., visit Charles V.'s Palace. [Note: Other places worth seeing are the Chapel of the Dukes of Burgundy, Porte de l'Escant, Hospital des Orphelines, tower of the Church of St. Charles Borromeo, the 'Maison des Bateliers in the Grand Square, and Quentin Matsys' Well, the Churches of St. Jacques, St. Paul, and St. Amand; the new Stenvenberg Hospital; the Royal Atheneum, and the new Musée des Beaux-Arts.] 7.30 p.m., dinner at Hôtel St. Antoine.

Thursday, Aug. 20.—8.30 a.m., breakfast at Hôtel St. Antoine, Antwerp. 10.43 a.m., leave Antwerp for Malines. 11.9 a.m., arrive at Malines. 11.30 a.m., visit Cathedral of S. Rumbold, met by Canon Van Caster. 1 30 p.m., lunch at Hotel Buda, Malines. [Note: La Halle and the Palace of Margaret of Austria adjoining, and many old houses on the canal and river fronts are worth seeing, as is also the old gateway of the town.] 5 29 p.m., leave Malines for Brussels. 5.52 p.m., arrive at Brussels. 7.30 p.m., dinner at Grand Hotel de l'Empereur, Brussels. Sleep at Grand Hôtel de l'Empereur, Brussels.

Friday, Aug. 21.—8.30 a.m., breakfast at Grand Hôtel de l'Empereur, Brussels. 9.40 a.m., leave Brussels for Louvain. 10.15 a.m., arrive at Louvain. 10·30 a.m., visit Cathedral. 1.30 p.m., lunch at Hôtel de la Cour de Mons. 2.30 p.m., visit Hôtel de Ville. [Note: Other places worth seeing are a Romanesque doorway in Rue de Malines; a brick-fronted house (14th century); Cæsar's Castle, near Malines Gate; and the stalls in the church of St. Gertrude.] 5.55 p.m., leave Louvain for Brussels. 6.29 p.m. arrive at Brussels (Nord). 7.30 p.m., dinner at Grand Hôtel de l'Empereur, Brussels. Sleep at Grand Hôtel de l'Empereur, Brussels.

Saturday, Aug. 22.—8.30 a.m., breakfast at Grand Hôtel de l'Empereur, Brussels. 10.0 a.m., Members joining the party for the second week only, leave London (Charing Cross) for Brussels viâ Ostend, arriving at 6.19 p.m. 10.30 a.m., visit Hôtel de Ville (15th century). 12.0 noon, visit the staircase at the King's Palace. 1.30 p.m., lunch at Grand Hôtel de l'Empereur. 3 30 p.m., visit Cathedral of St. Gudule (founded 1010, mainly 13th century). 7.30 p.m., dinner at Grand Hôtel de l'Empereur. [Note: Other places worth visiting are the Porte de Hal, the Palace of Laeken (1782), the Maison du Roi, and a bay window in the Terasken.]

Sunday, Aug. 23rd.—8.30 a.m., breakfast at Grand Hôtel de l'Empereur. 1.30 p.m., lunch at Grand Hôtel de l'Empereur. 7.30 p.m., dinner at Grand Hotel de l'Empereur. English Church of the Resurrection, Rue Stassart, services 11 a.m. and 7 p.m., and Christ Church in Avenue de la Toison d'Or, services 11 a.m. and 7.45 p.m.

Monday, Aug. 24.—8.30 a.m., breakfast at Grand Hôtel de l'Empereur, Brussels. 9.14 a.m., leave Brussels (Midi) for Mons. 9.20 a.m., members joining the party for the first week only, leave Brussels (Nord) for London viâ Ostend. 10.23 a.m., arrive at Mons, received by M. Dosvelis. 11.0 a.m., visit cathedral of S. Waudru (1460-1580). 1.0 p.m, lunch at Hôtel de la Couronne. 3.0 p.m., visit Hôtel de Ville (1458-67). [Note: Other places worth visiting are the church of S. Elizabeth and the Palais de Justice.] 5.11 p.m., leave Mons for Tournai. 5.58 p.m., change at Blaton. 6.52 p.m., arrive at Tournai. 7.30 p.m., dinner at Hôtel de l'Imperatrice, Tournai. Sleep at Hôtel de l'Imperatrice.

Tuesday, Aug. 25.—8.30 a.m., breakfast at Hôtel de l'Imperatrice, Tournai. 10 30 a.m., visit the Cathedral of Notre Dame (nave, 1171, vaulted in 18th century, transept 13th century, choir 1388). 1.30 p.m., lunch at Hôtel de l'Imperatrice. [Note: Other places worth visiting are the Churches of St. Quentin, St. Jaques, and St. Brice; many old houses, especially in Rue de Paris; and the Convent Colestin.] 5.8 p.m., leave Tournai for Courtrai. 6.36 p.m., arrive at Courtrai. 7.30 p.m., dinner at Hôtel Lion d'Or, Courtrai. Sleep at Hôtel Lion d'Or, Courtrai.

Wednesday, Aug. 26.—8.30 a.m., breakfast at Hôtel Lion d'Or. 10.54 a.m., leave Courtrai for Audenarde. 11.35 a.m., arrive at Audenarde. 12.0 noon, visit Hôtel de Ville (1525-35). 1.30 p.m., lunch at Hôtel Pomme d'Or. 3.0 p.m., visit Church of St. Walburga (part 12th century, part 14th and 15). [Note: The Church of Notre Dame de Pamell is also worth seeing—13 century.] 6 p.m., dinner at Hôtel Pomme d'Or. 8.12 p.m., leave Audenarde for Courtrai. 8.46 p.m., arrive at Courtrai. Sleep at Hôtel Lion d'Or, Courtrai.

Thursday, Aug. 27.—8.30 a.m., breakfast at Hotel Lion d'Or. 1.30 a.m., visit Hotel de Ville (1526-28, restored 1846), and belfry. 1.30 p.m., luncheon at Hôtel Lion d'Or. 3.30 p.m., visit church of Notre Dame (1211). [Note: There are many old houses in the town, and St. Martin's church should be seen.] 5.22 p.m., leave Courtrai for Ypres. 6.42 p.m., arrive at Ypres. 7.30 p.m., dinner at Hôtel de la Tête d'Or, Ypres. Sleep at Hôtel de la Tête d'Or, Ypres.

Friday, Aug. 28.—8.30 a.m., breakfast at Hôtel de la Tête d'Or, Ypres. 10.30 a.m., visit Cloth Hall (1201-1304) and Hotel de Ville (1575). 12.30 p.m., visit Cathedral of St. Martin (1221-1254). 2.30 p.m., lunch at Hôtel de la Tête d'Or. [Note: The meat market and several old houses are also worth seeing, especially in Rue de Chiens and in the market place—the Guild houses.] 3.56 p.m., leave Ypres for Ostend. 5.55 p.m., arrive at Ostend. 7.30 p.m., dinner at Hôtel du Kursaal et Beau Site. Sleep at Hôtel du Kursaal et Beau Site, Ostend.

Saturday, Aug. 29.—8.30 a.m., breakfast at Hôtel du Kursaal et Beau Site, Ostend. 11.10 a.m., leave Ostend for Dover; lunch on the boat (not included in ticket). 3.20 p.m., leave Dover. 5.0 p m., arrive at Cannon-street. 5 5 p.m., arrive at Charing Cross.

Should any members care to remain in Belgium for a few days longer, they will find Dixmude, Furnes, and Nieuport well worth visiting, though little known. The boat tickets will be available up to and including September 11th. We shall fully describe and illustrate the visit next week.

CHIPS.

The question of appointing a permanent water engineer in place of Mr. James Watson, now engineer at Bradford, was considered on Friday at the monthly meeting of the Dundee Water Commission. The Works Committee recommended that Mr. G. S. Baxter, a former assistant of Mr. Watson, who has acted for six months, should be permanently appointed. The recommendation was adopted.

The sum of £4,550 has been raised, against £6,800 required, for the erection of the new church of All Saints, in the parish of St. Nicholas's, Sutton, St. Helens. The church, which is being erected from the designs of Messrs. Paley, Austen, and Paley, of Lancaster, is to contain 600 sittings.

The reopening and dedication of Hartwith Church, near Dacre Banks, in the North Riding, after renovation, took place on Friday. The alterations and improvements have been carried out by Mr. John Wilson, contractor, of Birstwith.

A copy of the bust of the late Sir Robert Peel, by Sir F. Chantrey, now at Windsor Castle, taken by permission of the Queen, has been placed in the Gladstone Library at the National Liberal Club, as a companion bust to those of Mr. Bright and Mr. Cobden. The copy is by Mr. Adams-Acton.

The Marquis of Dufferin opened, on Monday, Dunville Park, Belfast, the gift of Mr. R. G. Dunville, who has paid £8,350 to secure the Park as a free gift to the citizens of Belfast, and on Monday gave £5,000 more to pay the cost of inclosing, planting, and furnishing it.

The Batley School Board have adopted plans by Mr. H. B. Buckley, of Leeds, for a girls' higher-grade school, to be built on Field-hill.

Mr. Herbert Kirk, of Sleaford, has been elected County Surveyor to the County Council for Kesteven (South Lincolnshire). There were 16 candidates for the office.

At the quarterly meeting of the Cornwall County Council, Mr. Silvanus Trevail, M.S.A., called attention to the needlessly large securities demanded from contractors, and on his motion it was decided "That no contractor for the erection of buildings or other works to be paid for by the county shall be called upon to provide approved bondsmen as security for the faithful performance of the work to a greater extent than 20 per cent. of the full amount of the contract; and where such contractor is willing to make a cash deposit with the county treasurer to the extent of 10 per cent. of the contract, such deposit shall be deemed a sufficient security, and shall obviate the necessity of finding any bondsmen."



TOWER BUILDINGS, TRINITY-SQUARE, E.C.

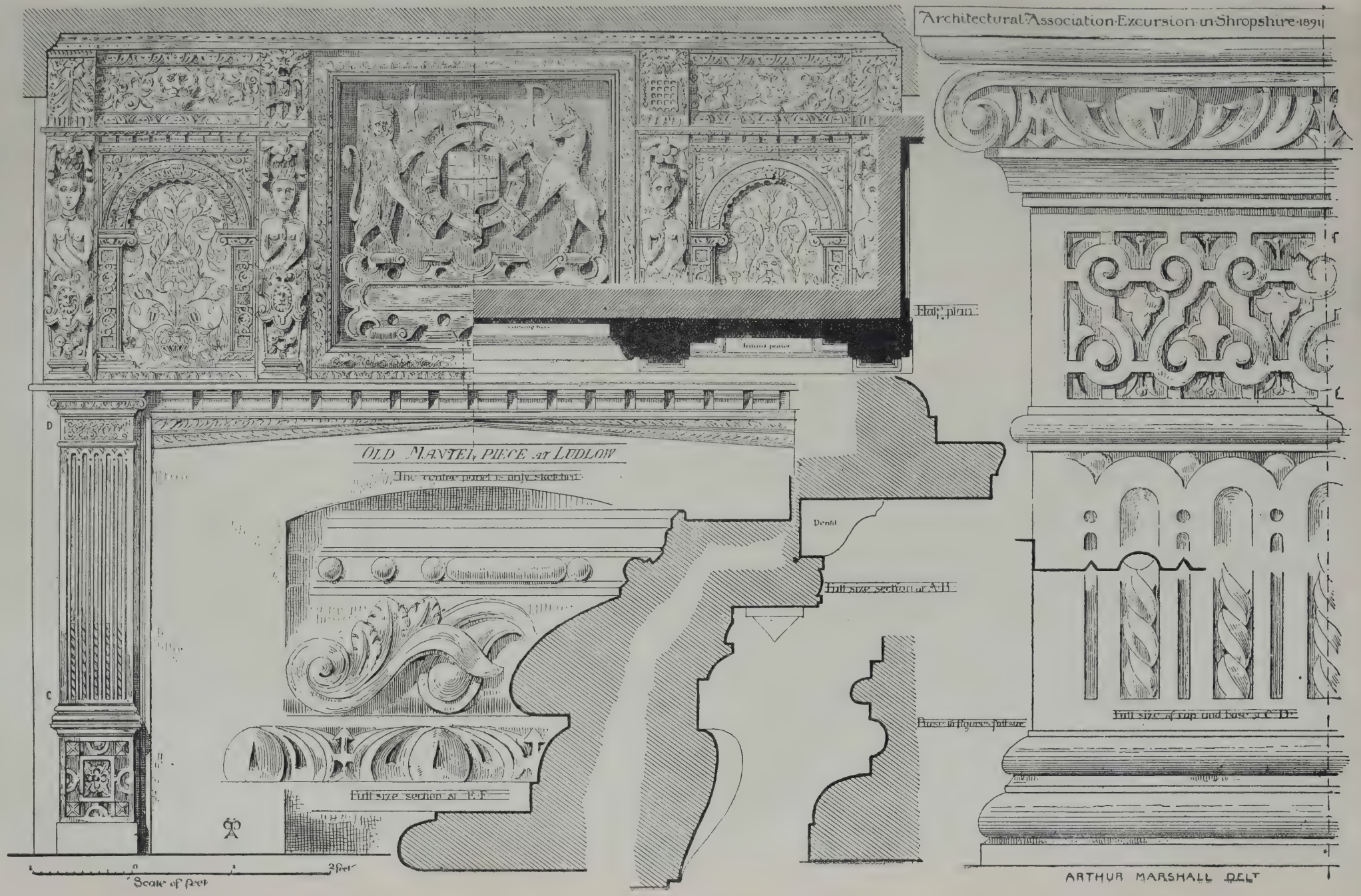
THE above premises are situate on the east side of Trinity-square, Tower-hill, at the corner of Trinity-place, and front the large open area that adjoins the Tower of London. Part of the old wall of London is seen just by the building, and the look-out from latter is over ground full of historic interest. The District Railway passes under part of the site, over which the building is carried on girders spanning the tunnel; its Tower station immediately adjoins, being on the opposite corner of Trinity-place. With the basement the structure has five floors. It is erected in red brick furnished by the New Heather Colliery Co., who have also supplied all the moulded work and ornament in cornices, strings, caps, key-stones, scrolls, copings, &c., from the architect's special designs. The ground floor is used for offices and sale room, and the upper floors and basement as warerooms, &c. A crane is provided for goods, lifting from basement to second floor, and internally there is a lift for goods from basement to third floor. The frontage is a good one, and the whole of the premises exceptionally well lighted. The whole of the works have been carried out by the builders, Messrs. J. Allen and Sons, of Palmerston Works, Kilburn, from the designs, and under the superintendence of the architect, Mr. Thos. R. Richards, of 25, Bedford-row, W.C.

PATENT ENCAUSTIC AND GLAZED TILES.

A NEW catalogue of flooring and wall tiles has been published by Messrs. T. and R. Boote, of the Patent Tile Works, Burslem, and of Holborn-circus. One important feature to be noticed are the new arrangements and colours of some of the tile designs on plates 100, 102, 103, 104. We especially call attention to a nice arrangement of squares and intersecting lines in pattern No. 608. The dark tiles, set diamondwise in the centres of open squares, make a pleasing pattern, out of the common, and the light and dark shades of chocolate are harmonious and well blended. Another new arrangement of squares and octagons of rather darker tone is shown in No. 609. These tile patterns are only 5s. 6d. per square yard. A very nice design in black and light buff, suitable for Classic buildings, is shown (No. 676), in which elements of the Greek or key-pattern are introduced. The arrangement of border and centre is out of the ordinary run. No. 678 is a peculiar design, which may be termed a brick pattern, of a light and darker shade of red. Some good lobby or vestibule patterns are shown on plate 102. The colouring in patterns No. 626, 627, 628, are of lighter and more subdued shades of red buff and grey than generally seen, and, we think, will wear much better than the stronger and more vivid contrasts. These are suitable for corridors and floors. Charming and brighter patterns are shown in the next plate, many of them showing a nice arrangement of colour, and of more harmonious hues than often met with. Every variety of taste may be met by Messrs. Boote's collection, several plates being devoted to patterns for floor-tiles of every conceivable arrangement and colour, large and small. The delicate tints of wall-tiles, in squares and hexagons and octagons, in duck-greens, buffs, light greys, white and brown, and white and blue, suitable for lavatories, larders, &c., may be noticed; also hearth-tiles and glazed dado and wall-tiles in some very quiet and pretty patterns and colours. The patterns are all drawn to a scale, and the catalogue is accompanied by a price-list. These new encaustic, mosaic, and tile pavements and wall decorations are of moderate price.

The new schools at Ince, near Wigan, are being warmed and ventilated by means of Shorland's patent Manchester grates, the same being supplied by Mr. E. H. Shorland, of Manchester.

The York City and County Banking Company, Limited, have just opened a branch bank at Durham. The work necessary for the conversion of the premises into a bank has been satisfactorily carried out by Mr. Thos. Coates, builder, of Durham, from designs and under the superintendence of Mr. H. T. Gradon, A.R.I.B.A., of that city


Architectural Association Excursion in Shropshire 1891
OLD MANTEL PIECE at LUDLOW
The centre panel is only sketched
Half plan
Dentil
Full size section at A B
Full size section at E F
Full size of top and base at C D
Scale of feet
3 feet
ARTHUR MARSHALL DELT

WAYSIDE NOTES.

E International Congress on health matters is a fussy gathering. There never was, of , such a "concentration of thought and an interchange of ideas upon sanitary ts" as at the meeting at St. James's Hall nday last, which would have gladdened the of the late Sir Edwin Chadwick. There e Prince of Wales presiding at the opening series of meetings for the discussion of ie, and the columns of the dailies filled chnical dissertations on subjects which, in themselves particularly attractive and g, are yet calculated to as much promote neral weal and benefit the community at as Parliamentary debates or archæological hts.

s true that we are now well in the "big perry season," and that the dailies afore- re glad of copy even if it consist of no more ul subject-matter than microbes, bacteria, e, and slaughter-houses. It is further at in the present congress we are getting but fads from professional faddists, who laid hold of the opportunity to inflict upon persons ideas resulting from local mental gement, from which they themselves suffer. l, editors short of copy probably wink at inter, and console themselves with the idea really big fad goes down nowadays in t as well as an idea—*perhaps better*.

t interesting to architects among the le mass of verbiage have been the addresses iscussions in the section of "Architecture lation to Hygiene," over which Sir Arthur ield presided. Sir Arthur's address itself, abt, contained a great deal of interest and cal service, touching the connection between and beauty and ugliness and disease, but nded very much like a pastoral address.

Earl of Meath still pegs away at the on of open spaces, and brought forth by his on Tuesday a statistical statement from an ling member as to the relative number of iduals to open spaces in several large cities. ndon, leaving out the great parks, there are rsons to an open acre, in Paris 495 persons, nna 473 persons, and in Brussels 637 per- In the Engineering Section it is evident those who have to address the Congress have s one staple article on the bill of fare, and not particularly attractive, except to lists. There is always something to be said the *drainage of London*, and this was the t tackled by Sir John Coode as President Section. One might listen in vain for any practical suggestions on this now leviathan on, which is a foeman worthy of the united hts of a whole Congress. It remains to this nt master of English engineers and ists; nor, considering the diversity of n on the best method of sewage disposal he Metropolis, is the prospect of a really ive solution of the problem very encouraging. two alternative proposals put before the ress by Sir John Coode are the treatment of wage by filtration through land—sewage- , I take it—or its conveyance to the coast d the mouth of the estuary of the Thames.

at appears to be a good competition for eers is that hailing from New South Wales. £700, £300, and £200 contrast well with 15, £10, and £5 offered to the architectural ssion by the Corporation of Luton, who re designs for the alteration of a public hall, seeing that they want the plans by Sept. 8, in some haste to receive them.

respect to the charges against certain dian officials, now being investigated by amentary Committee at Ottawa, a corre- lent writes to the *Pall Mall Gazette* that the dian Public Works Department is "rotten e core," and says: "a striking sample of ay in which contractors have been allowed un' the Public Works Department has been led in connection with the 'Langevin r'—a pile of public offices close to the es of Parliament. The contractor for the nry, &c., was allowed by special clause to a tax on any other contractors who might to work in the same building. This he did e extent of 25 per cent. For instance, a that had agreed to put in heating apparatus, for £3,000, had to pay the first contractor £750 before gaining entrance to the building. Another firm got a contract to put on the roof for £8,600, reckoning to make £1,800 profit; but on their refusal to hand over all their expected profits and more beside to the 'man in possession,' the latter got the contract himself, though his tender was for £12,000." This indicates a bad state of things enough for a Works Department, even if the other charges brought against the officials are unfounded.

Are we going to have a craze for Spanish detail? I trust not; but it is certainly curious that, as you reported last week, so many of the competitors for the new buildings at Kensington have adopted a Spanish treatment. Spanish detail, in only one set of designs, seemed a novelty, and no desirable novelty to my way of thinking; but when I read on and found not one but two, three, and four of the sets of designs described as having Spanish feeling in the details, then I marvelled, for, so far as I can see, the mere necessity for harmonising with existing buildings did not bring about the general adoption of Spanish detail and other features from the architecture of the Peninsula. What, then, is the cause? I did not know that there was so much as a suspicion of a rage for a Spanish mode of treatment in the up-to-date architectural circles; but one is compelled to conclude, from the result of the South Kensington competition, that a mild form of "sub-acute" fever of this kind exists. For my own part, I must say I fail to see the advantage thereof, whatever opinions other parties may hold.

I see, from a note in one of my note-books, that, according to Leeds, the author of "The Orders of Architecture," the Hanover Chapel bases are the only examples in the country of the peculiar base-moulds employed. So this is more than I stated the other day, when I said that they were good examples of this kind. As it is improbable that any further example of this very beautiful variety of the Ionic base has been erected since Leeds wrote, the iconoclasts about to pull down the chapel in Regent-street will be destroying something positively unique. Perhaps they will feel all the more proud of their achievement when they know this. Dreadful, isn't it, in spite of the R.I.B.A. and all its angels, to lose the only real Ionic base in Regent-street?

St. Helen's, Bishopsgate, is about to be restored in the thoroughgoing style, according to the *Athenæum*. Mr. Pearson will be the architect to the restoration. The rector of St. Helen's has issued a circular, in which he states that, if the work is to be properly performed, and in a manner worthy of this renowned church, it will be necessary to raise by subscription a sum of £3,000 over and above the sum allotted by the Charity Commissioners and that contributed by the patrons. The estimate for the reparation and restoration is £7,000, with £3,000 as the probable cost of new fittings and decoratiom. The Charity Commissioners have granted £4,092, and the patrons of the church have subscribed £2,000. This seems a lot of money to be expended on a comparatively small building, and where we hope constant regard will be had to the old architecture, and to historically-valuable features; but then Mr. Pearson has a way of doing things solidly—as, for instance, when he boarded and felted, twice over, the roof of Maidstone Church.

The City Corporation is about to purchase a farm on the edge of Banstead Downs, so that they will have a *locus standi* if any future lord of the manor or other "land-grabbing potentate" should endeavour to inclose pieces of common land for private. This is good. I wish the Corporation would also interest themselves in Hayes Common. I have been in the habit of roaming all over the place for years; but now signs of inclosing appear, the right whereof and title thereto I should like to see in black and white. Some years back, a fine piece of primæval forest, with venerable oaks, wherein I have roamed freely, was inclosed, and houses built, and of late I have noticed that iron railings have been placed round a similar grand piece of apparently public common, with what ultimate views I should be interested in knowing. I much wish attention could be drawn to the latest inclosure of this magnificent tract of common land.

GOTH.

NOTES FROM IPSWICH.

IPSWICH, the chief town of Suffolk, is a very prosperous place. It is putting out its feelers in all directions, and enlarging its borders. The land on all sides is being rapidly taken up for building purposes, and the number of handsome villa residences which already dot the surrounding hills is being constantly added to. Internally, too, the town has undergone great changes and improvements. The business establishments at various points in the main thoroughfare—nearly a mile in length—have been beautified and enlarged. Indeed, at every point there are indications of marked commercial prosperity; so that from the time when a few years ago £250,000 was spent in public improvements, the builders have been more or less busy, and some of them have found it necessary to set their own houses in order. Notably has this been the case with the New-street Works, whose proprietors have in turn during the past century played a very prominent part in the extensive public works and private improvements which have been carried out, especially during the last quarter of the century. This building establishment, which covers an area space of something like an acre, is situated in the oldest part of Ipswich, the rich carving and the grotesque figures which embellish the fronts of many of the old houses in the parish of St. Clement testifying in a way nothing else could do to the standing and prosperity of men who generations ago did good business in this part of the town. New-street is an important thoroughfare as leading from a rising district occupied chiefly by artisans. A good deal of the "newness" of the street disappeared long ago, and strangers must have wondered why it was called "New"-street. Mr. Fred Bennett, the proprietor of the building establishment, which takes its name from the locality in which it is placed, has, however, removed—for a time, at any rate—any reproach which might hitherto have attached to the locality on the score of its want of freshness, seeing that he has taken up about half one side of the street with his new works. But if you would know the extent of the ground covered, and the number and uses of the various buildings, and be interested in the labour-saving appliances to be found here, you must go behind the scenes. There are, indeed, several branch establishments within these four walls. Not only is Mr. Fred Bennett a building contractor, but he is also a plumber, glazier, and painter, an artesian well borer, stonemason, and blacksmith. Each business has a department or store to itself, with, of course, its responsible head.

It is not necessary to trouble the reader with dry details as to the sizes of the different compartments found within the spacious inclosure. The old office which sufficed in 1846 looks very tiny in comparison with the large, lightsome, and well-fitted-up department which is the heart or life-centre of the whole of the business. Of course, there is a private office, which Mr. Fred Bennett has all to himself; then there is the commercial office, whose shelves, by the way, are adorned with a complete set of the BUILDING NEWS; then there is the clerks' office, with telephone adjoining, while the huge fireproof safe has an apartment of its own. The machine-shop has two circular saws, hand-saws, frame-saws, gulleting, planing, thicknessing, and drilling machines, supplied by Mr. Henry Prince, 3, Victoria-street, Westminster. The joiners' shop is a very spacious building, with bench-room for 40 or 50 men, and at all times the scene here is a busy one. This has been provided with mortising machinery, and other adjuncts for expediting joinery work. Leading out of this is a store for ironmongery replete with everything necessary for the builder. The painters' shop is a very roomy compartment, and underneath this is the plumbers' shop, with screw-cutting machines and other necessary appliances. Close by is the well-boring shed, where are well-boring tools with rods for boring to a depth of 1,500ft. By the way, Mr. Fred Bennett makes a speciality of, or rather lays himself out for, well-boring, and of late he has sunk 40 or 50 artesian wells in the neighbourhood, and has done miles of arterial drainage in Ipswich. The blacksmiths' shop is quite of the old-fashioned type, but a steam-blast does efficient duty in the place of bellows. There are bolt and wrought-iron stores, troughing and piping, and block stores, and other convenient stowage places. The masonry department is evidently considered a

highly-important branch of the operations carried on within this inclosure. The yard is completely furnished, so that about a score of masons can work at one and the same time, while by the side of it is a large, well-fitted-up masons' office. Plumbing is also another feature in these works, and attached to this is a handsome drawing office. There is, too, a mortar shed, with a steam mortar mill and engine complete, so that there is no waste of the old mortar which comes to hand in the pulling-down process; but it is re-ground up, and the last condition of the mortar is certainly stronger and better than the first. Mention ought to be made of the stabling, there being stalls for half a score of horses.

Mr. Fred Bennett has a good name in the county, and even far beyond its border, for the excellence of his work, and it is only just to him to say he prides himself upon this. The stored timber bears significant marking to indicate its age, so as to insure good seasoned wood being put into new work. The undertakings with which this firm have been connected are legion; but the more recent include extensive alterations at Euston Park, the Suffolk seat of the Duke of Hamilton, involving an outlay of £14,000; the Ipswich Museum; the Ipswich Free Library; the Ipswich Art Gallery, and other public works.

About 300 men are employed at the New-street Works. Mr. Bennett is the president of the Builders' Association, whose members have arranged with their men in reference to their wages for the next three years. This gentleman is exceedingly popular amongst the workmen of the town, and he enjoys the esteem and confidence of all in his own employ, whose welfare he has closely at heart, one, amongst many other proofs, being afforded by his generous support of the benefit club, which has proved such a valuable help to the men at a time when help is most needed, and, therefore, most appreciated.

HOT-WATER ENGINEERING.—X.

Supply of Hot Water for Baths and Domestic Purposes.

the cylinder system (*continued*).

REFERENCE was made in the last paper to the disadvantages which lead to the less use of large circulating pipes in the tank system, the chief one being the disproportionate increase in cost, both in material and labour, in erection. Large pipes, with certain precautions pointed out, are preferable, so that in the cylinder system we have another advantage in being able to have full-sized services where the deposit occurs without increasing the cost but to a very small extent.

As a rule, the extent of pipe between the boiler and cylinder does not exceed 12ft., with perhaps four bends, four connectors and back nuts, for both services. Under these circumstances a good-sized pipe can generally be afforded—1¼in., or sometimes 1½in.—as we do not get incrusted deposit in any of the other pipes, not even in the beginning of the secondary flow or rising main. If deposit has ever been found in this latter pipe it may be considered an exceedingly rare instance. A thin film may occur, but never sufficient to choke the pipe.

The rising main should be 1in. pipe in moderate and fair-sized works; ¾in. is permissible in small undertakings. It is not a question of the pipe being stopped with deposit that governs the size in this instance, but provision that the overflow of water at the taps may be abundant and not slow, a slow issue of water at a tap causing much annoyance both at the servants' sink and at the lavatories and baths, particularly the latter. A larger pipe than 1in. is not recommended, as no occasion exists for it except in large works: this sized pipe will give a good outflow to two ¾in. taps opened at once. This, however, is further governed by the size of the cold supply, as will be explained directly. The return of the rising main (secondary return) may be ¾in.; it hardly ever need be larger unless draw-off services are taken from it, then it requires to be the same size as the rising main itself as far as the last tap. Past the last tap it may be reduced if the distance to the boiler makes it worth the while. This has already been fully explained.

The draw-off services vary in size, but it may be first mentioned that whether the apparatus be upon the cylinder or tank, or any other system, the size of these pipes and the necessary taps are the same. That is to say, if a 1in. pipe and tap is recommended for the draw-off service to a bath, then this size is suitable whatever system it be connected to. The bath service is usually the largest, as a slow-filling bath is never liked; 1in. pipe should be used for this (assuming the rising main is 1in.), and if it terminates with a tap over the edge of the bath, then the tap should be 1in. also, and have as full a way through it as possible. There is no advantage in using a large draw-off service pipe if the bore of the tap chokes the passage of water. If the pipe is connected to the fittings provided by the bath maker, then no gain is effected by a large pipe if the passage through the fittings be small.



FIG. 31.

Baths are now made in great variety, but the majority of those for moderate and good quality works have fittings attached—that is, the hot and cold water taps and waste attachment are combined in one brass fitting at the foot of the bath, as doubtless every reader knows. The particular objection to many of these fittings is the small passage or way through them, and this is too commonly aggravated by the shape of the outlet causing the body of water which issues to be broken up. Sometimes a deal of the water is ejected like spray. This action cools the heated water, and it also has the objectionable effect of rapidly filling the bathroom with steam—a decided drawback at the best of times. Some of the best bath-makers obviate this latter trouble by having the hot-water inlet near the bottom of the bath (not in the bottom, but in the end), so that when a little water passes into the bath the inlet becomes covered, and steam then, of course, ceases to rise, except a little from the surface of the water which is in the bath. This

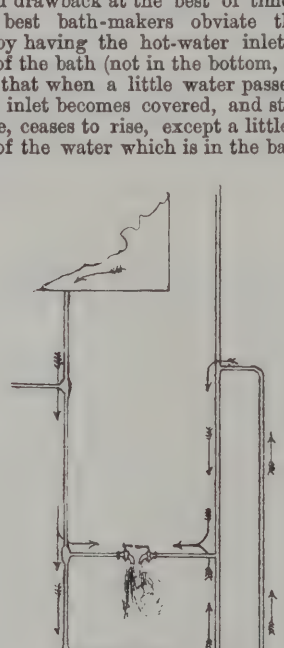


FIG 32

arrangement must not be confused with the old pattern zinc and copper baths which have but one aperture in the bottom, this aperture answering for hot and cold inlet, as well as waste outlet. This old method certainly prevented steam rising as much as the new, and also had the same advantage of filling the path silently, instead of with the otherwise roaring of the outpouring water; but it possessed the particular disadvantage of washing back the soapsuds, &c., of the last bather each time the bath was refilled. The inflowing water would always carry in such matter that would naturally collect in this general outlet and inlet.

Draw-off services to servants' quarters, scullery, butler's pantry, housemaids' sinks, &c., are almost always ¾in., with ordinary taps. S times the last-named are ½in.; but not i good-sized residence. The other two name rarely less than ¾in., and except in property a smaller tap would cause annoy The butler's pantry sink, which is pro with a cover, generally requires what is ca "horizontal" cock, with the key at the si Fig. 31. There is not generally room for the ordinary upright variety; the handle be in the way of the lid. The emptying below the cylinder should be ¾in., with a keyed cock, as explained; a smaller s would do, but would render the emptying cylinders a very long job.

The cold supply service in the cylinder s is undoubtedly the most important of all the in the apparatus, and it is this pipe that is as an argument against the system in que When the rising main is returned, the supply, which is brought all the way down the house cistern to the cylinder (see illustr in last paper), forms a third pipe extending bottom to top of house, and this is conside disadvantage compared to the tank system, has only two pipes extending thus, and the pipes in cost of material and cost of labour e that of two pipes. It must, however, be po out that the difference is not so great appears at first sight, as the three pipes less size than the two mentioned.

This extra pipe question has received a d attention with a view to doing away with i without lessening the efficiency of the apps and still retaining the advantages of the ret rising main. The general way this has aimed at is by utilising one of the cold- pipes which convey water to the sinks, &c. which, in the ordinary way, are not suppo have any connection with the hot-water paratus. This will answer, to a certain ex As long as the pipe starts from the ciste the top of the house, and terminates at cylinder, it does not materially matter h deviates from a direct route, so long as it is from end to end, and has no obstacle or stop in it. The mere fact of cold-water dra services being in connection with this pipe not interfere with the free supply of water cylinder, except in the following way.

If the cold supply to the cylinder has d off taps connected to it (this is what the arr ment under discussion amounts to), there is result brought about in this way. It is custo at a sink or a bath or lavatory to open both and hot taps together when warm wat needed, and as only one pipe from the cistern feeds or supplies the two taps, it fo that the water will only issue from the t about half the speed that it would do if a sep pipe from the house cistern was devoted to as is the case in a properly-constructed appa This result is particularly unfortunate at a where rapidity of outflow is all-important the hot tap will be found to run very slow passage of the water through the system of impedes the flow still more. It will be fou almost every instance that the water will from the cold taps more freely than from hot, as in the former case the distance in l of pipe is less and more direct. Fig. 32 trates an apparatus in which the cylinder i from one of the house cold-water services. arrows show how the water passes from ciste taps when taps are opened.

There is another disadvantage in utilisin method just explained in the fact that i cold-water taps are situated in this cold s pipe near to the cylinder, hot water will s times be drawn from them—a result that i always pleasant. In the next paper wi described the method most to be recommend obviate the necessity of bringing the cold s pipe down to the cylinder, this method admi of all the advantages sought for.

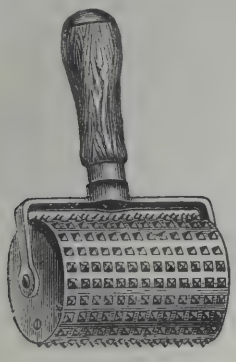
THE LONDON CARPENTERS' STR

THE Master Builders' Association have week, through their secretary, writt the United Trades Committee, withdrawin terms offered at the recent conference. A r has been circulated that several of the sh South London were reopened on Monday old terms; but this proves, on investigati be without foundation. *Per contra*, five firms, Messrs. Batchelor, Portman-street; Barker, Kensington; and Calnan, Romaines

eckley, have given the advance to 10d. and 47 hours' week. Of the 175 firms struck, 43, ploying 1,500 men, have now conceded the n's terms, and the United Trades Committee being well supported with funds by the pro- cial branches. At present 3,600 men are iving strike pay.

PATENT PAVEMENT ROLLER.

HIS patent brass roller, invented by Mr. Alexander Gilchrist, of 35, Eglinton-street, sgow, is designed to impart the necessary entation or grooving to cement pavements, ich, when in a semi-liquid state, are indented



h this apparatus so as to give them the degree roughness required to prevent people from ping. As this kind of pavement is now coming very much in favour not only in sub- cution for the ordinary York stone for foot- hs, but also for indoor corridors and staircases, ere the smooth cement rapidly becomes pery, Mr. Gilchrist's rollers should come into ensive use. The body of the roller and the th are made in one piece of brass, there being refore no danger of the teeth falling out and uiring to be replaced. Name plates, gutter lers, and stable-pavement rollers, and, in fact, lers of any pattern for the surface ornamenta- n of plaster or stucco, are made by the same ventor.

CHIPS.

The restoration of the tower of Ludlow Parish urch has been completed this week at a cost of ,000. The work has been carried out under the ection of Sir Arthur W. Blomfield by Mr. John ompson, of Peterborough.

A destructive fire occurred on Saturday at the aber-yard of Messrs. F. Appleby and Son, Queen's ck Side, Hull.

The Manchester Corporation, who are demolish- g the 18th-century church of St. Mary for the rpose of widening Deansgate, and providing open space, discussed at their last meeting whether e tower, described by Mr. Waterhouse, R.A., as As fine as anything of the kind in Manchester," ould be retained. The corporation decided to nolish it, the Mayor declaring that the steeple d no architectural beauty, and was only a plain d meaningless obelisk.

Two portions of Roman wall running at right gles, and some Roman bracelets, coins, a spur, d fragments of armour and vases, have been dis- erred during excavations for rebuilding Messrs. msdale's bank in Cornhill.

Mr. William Oxtoby, assistant borough engineer Hull, was elected borough surveyor and inspector nuisances of Beverley, on Monday.

Two windows in the south clerestory of the nave the cathedral of Manchester are about to be filled th stained glass by private donors as memorials.

The picturesque town of St. Ives, Cornwall, is have a new mariners' church, and Mr. Edmund dding, of Plymouth, has been chosen architect. e site is a particularly good one, standing on the vated ground behind the quay.

The Congregational church in Park-crescent, apham, a building erected, in 1847, in the version Early Pointed then fashionable in Dissenting mmunities, is being renovated. The principal çade has been partially rebuilt, the gable lowered nearly 10ft., and a terracotta orb substituted r a decayed stone cross, and all the Bath stone uildings, which had perished through the action the weather, are being cut away from doors and ndows, and all masonry refaced. Mr. Knight, Acre-lane, Brixton, is the contractor.

Building Intelligence.

Dunblane Cathedral.—During the summer months rapid progress has been made with the mason work in the restoration of this cathedral. The choir, which has been the place of worship for many years, has given more anxiety to the restorers than the nave, which has been roofless till now for three centuries. It was found that the tops of the choir wall were more decayed than was expected, and part had to be taken down and rebuilt. This being now finished, the external appearance looks complete. In the south wall of the choir there are six large windows, and the upper part of the tracery of four of these has been altered to correspond more exactly with what is considered the original. The east gable, containing the great east window, has now been flanked on either side by a small turret. Dr. Rowand Anderson, of Edinburgh, is the architect. A full-size drawing of the exterior and a plan of the cathedral, by Mr. J. B. Tyerman, and an interior view by Mr. J. S. Gibson, of Dundee, will be found in the Building News for July 24, 1885. The west front was illustrated from a sketch by Mr. W. Ferguson in our issue of Dec. 14, 1878; an elevation and details of this façade, drawn by Mr. E. F. Clarke, in that of May 20, 1870; and the nave arcade and south aisle, also by Mr. Clarke, in that of Oct. 14, 1870.

Epworth Parish Church, Lincolnshire.—On Bank Holiday, a new public clock, striking the Cambridge chimes on four bells, and the hours on the fine tenor bell of about 27cwt., was started here by the Bishop of Nottingham. The old clock, which was quite worn out, and useless as a timekeeper, was erected just a century ago, to commemorate the event of some of the Wesley family being preserved from a fire at the rectory, the present clock being erected by a public subscription from all denominations. Messrs. Wm. Potts and Sons, clock manufacturers, of Guildford, and Cookridge-street, Leeds, makers of the Cathedral clock, Lincoln, were selected to carry out the necessary work.

Everton, Liverpool.—St. George's Church, Everton, was reopened on Sunday, after internal redecoration. Formerly the church, even on the brightest days, was dark and gloomy in appearance. The main roof and other ceilings are now decorated in vellum tones, and within the quatre and trefoils in deep reds and turquoise blue; the tracery, along with spandrels, arches, and other iron work, is treated in a light cinnamon colour. On the front of the gallery a warm ivory colour, with cinnamon mouldings and a Gothic design in rich red and turquoise blue, are employed. At the west end the great wall space is broken up by bands and Gothic designs, worked out in deep reds, blues, and yellows. The works have been carried out by Messrs. G. H. Morton and Son, decorators, Liverpool, under the personal supervision of Mr. Morton, jun., M.S.A.

Glasgow.—The Athenæum buildings in St. George's-place, only erected three years since, are about to be extended on the site of the Religious Institution Rooms, having an area of 86ft. by 45ft. The hall in the basement is seated as a theatre, with folding chairs, the audience being about equally divided in area and gallery, each part of the house having separate access and independent emergency doors. The smoking room and light luncheon room of the refreshment department may be used in connection with entertainments in the hall. The dining-hall on the first floor, a room with wood-panelled walls, covers the entire site, with the exception of main staircase. The gymnasium, with its dependencies, like the restaurant, covers the entire site, and has an open floor space of 85ft. by 30ft. 6in., of which 60ft. by 30ft. 6in. is 25ft. high, and lighted from the roof. The whole building is to be ventilated by forced draught, and lighted by the electric light. The elevation to Buchanan-street is in sympathy with the design of the original building. The cost of the extension will amount to about £15,000. The architects are Messrs. J. Burnet, Son, and Campbell; the measurers Messrs. J. Dansken and Purdie; and the clerk of works, Mr. Thomas Douglas.

Leamington. — The memorial stone of a gymnasium about to be added to the College, was laid last week. The site adjoins the present racquet-court, and the building will comprise a hall, 75ft. by 35ft., separate dressing-rooms for the upper and lower schools, and lavatories. These latter apartments, however, will be added at some future date. The gymnasium will be built of Leicestershire red bricks with Bath stone facings, and the interior will be lined with red and white bricks. There will be a pitch-pine dado, 5ft. high, running all round the room, and at one end a large gallery will be placed. The roof will be constrcted on the queen-post principle. The estimated cost of the building is £1,300. The contract has been placed in the hands of Mr. R. Bowen, and the architeet is Mr. Hawley Lloyd, both of Leamington.

Rivington.—A chapel is being added to the Grammar School situated at the foot of the Pike at Rivington, as a memorial, and the foundation stone was laid last week. The site adjoins the school-room on the north-west. The plans, as designed by Mr. R. K. Freeman, F.R.I.B.A., of Bolton, shows a building of Gothic character. The chapel, the floor of which is raised some 5ft. above the entrance, will be approached by a flight of steps, and measures 46ft. by 22ft. 6in., the floor of the chancel end being slightly raised. On the right of the chancel is placed a small organ-chamber. The benches, which will be of oak, will run along either side and across one end. The roof is to be carved and boarded, and divided into panels by moulded ribs, whilst a roof principal, with carved beams, will separate the chancel from the nave. The east and west windows are large, and filled with tracery. The roof will be covered with slate, and the floors fireproof and finished in wood blocks, the floor of the chancel being covered with tiling. The materials will be of local stone, similar to those used in the school. The contract for the work has been let to Messrs. Moore Bros., of Rawtenstall.

South Shields.—During the past few weeks the theatre has been closed, and some alterations have been carried out. The bar on the dress-circle floor has been converted into a lady's cloak-room. Two new fireproof staircases have been provided. The ceiling is covered with lincrusta, and divided into panels of geometrical design. The cornices have been stencilled in colours, the friezes being decorated with lincrusta, and picked out in colours. The fronts of the gallery and dress-circle have been altered, and decorated. The panels are filled in with Tynecastle tapestry, relieved with foliage and figures. The whole of the interior has been reupholstered and redecorated. The structural alterations have been carried out by Messrs. H. Brown and Co., of Newcastle; and the painting and decorations by Mr. G. G. Laidler, of the same city. The work has been carried out under the superintendence and from the designs of Mr. J. H. Morton, of South Shields.

Woodhouse, Leeds.—A building to be known as the March Institute is being erected in connection with St. Mark's Church and Schools, Woodhouse Moor. On the ground floor there will be a reading-room 28ft. by 18ft.; a recreatiod room 28ft. by 20ft.; a small lecture-room, 31ft. by 23ft.; a tea-room, committee-room, lavatories, cloak-room, &c., together with apartments for the caretaker. On the first floor there will be a large lecture-room, 70ft. by 39ft. 6in. This room will be approached by two separate staircases, and have a large platform at one end, near to which will be a small committee-room. There will also be a second tea-room on this floor. In the basement will be the heating apparatus-room and a large covered playground. The latter will be lined throughout with white glazed bricks; and owing to the natural fall of the site, it will be above ground at the back. The building is to be of red pressed bricks with Bradford stone dressings. The windows in the two principal elevations will have moulded jambs, transomes, and mullions. In the west elevation, which is gabled, are to be two oriel windows of stone, with moulded jambs, mullions, and transomes, and embattled cornices. The gabler above these windows will be filled with diaper brickwork. The windows on the first floor will be gabled. The lecture-room will accommodate 600 persons, and have an open roof with hammer-beam bindings. The windows internally will have quoined stone jambs and mullions, and be filled in with cathedral glass in lead-work. There will be a framed panelled and moulded dado, with a moulded and embattled cornice. The whole of the internal woodwork will be stained and varnished. Messrs. Smith and Tweedale, of South-parade, are the architects, and Mr. Thomas Hannen is the contractor

COMPETITIONS.

Glasgow Art Gallery.—The executive committee of the Association for the Promotion of Art and Music in Glasgow met in Hutcheson's Buildings on Friday. The secretary announced that the minimum of £46,000, which was required before the contract with the Corporation became operative, had been subscribed by 43 people. The executive resolved that there should be a double competition with the view of obtaining a suitable design for the new galleries. In the first place they will ask all architects who choose to do so to compete, and from among the competitors at least five will be selected, and they will be invited to send in complete plans and drawings, one of which will be selected. Mr. Alfred Waterhouse, R.A., was appointed assessor to guide the committee in the various steps they have to take in framing instructions for the competition, and in finally selecting a plan. It was also remitted to Mr. Waterhouse, along with Mr. Macdonald, city engineer, and Mr. Paton, curator of the Corporation Galleries, to adjust, on the basis of the report approved, the conditions of the competition and the instructions to the architects. These will be printed and submitted to a meeting of the executive to be held on Monday, Aug. 24, so that advertisements can appear in the architectural journals on Aug. 29, inviting competition plans, which it was arranged should be sent in early in November. It is expected that building operations will be commenced in April next, and that the foundation-stone will be laid in August next.

Manchester.—At the last meeting of the city council it was decided to award the premiums offered for the best designs for artisans' dwellings as follows:—Oldham-road area: First premium, £100, Messrs. Spalding and Cross, Queen-street, Cheapside, London, whose plans were signed "Practical"; second premium, £50, Mr. W. R. Sharp, 13, Exchange-arcade, Manchester, for designs signed "Simplex"; the third premium of £25 was awarded to Messrs. Gibson and Russell, Old Bond-street, London, whose plans were signed "All things considered." Pollard-street area: First premium, £30, awarded to Messrs. Spalding and Cross; second premium, £20, awarded to Mr. T. L. Worthington, Queen Anne's-gate, London.

New York.—The Trustees of the Cathedral Church of St. John the Divine have decided to place the erection of their building in the hands of Messrs. Heins and La Farge, of New York. We illustrated their selected design, together with those of the other three competitors, in our issue of the 3rd April last. It is an adaptation of Romanesque details to Middle Pointed outlines, of the class popularised in the Eastern States by the late H. H. Richardson, of Boston, and shows a nave with lofty clerestory and low aisles, apsidal-ended choir with chevet of chapels beyond, transepts, and round-ended morning chapel on south side; in the centre is a huge pinnacled tower capped with a broad spire, and the west end is flanked by a comparatively unimportant tower and spire on either side. The cathedral is to be built on Washington Heights, at a cost of nearly a million sterling, and Messrs. Heins and La Farge's design has been chosen in a second and final competition, for which only four designs were sent in.

The Grand Theatre and Opera House at Stockton, which has recently changed hands, was opened on Monday. The building has been entirely remodelled by Mr. Frank Matcham, of London, whose plans have been carried out under the direction of Mr. C. Moses, of North Ormesby.

In our notes anent Victoria Law Courts, Birmingham, we mentioned "radiators" as being used for warming, but we omitted to say that they are of the "Sunbeam" pattern, which are manufactured by Messrs Longden and Co., of London and Sheffield. The following list of places at present in hand, and recently warmed with these radiators, is strong evidence of their popularity:—Royal Infirmary, Liverpool; Royal Hospital for Consumption, Ventnor; Assize Courts, Nottingham; Epidemic Hospital, Nottingham; National Provincial Bank of England, London; National Provincial Bank of England, Manchester; National Provincial Bank of England, Middlesbrough; National Provincial Bank of England, Cardiff; Town Hall, Birmingham; Guildhall, Gloucester; Coates Memorial Church, Paisley; the Camera Club, London; Messrs. Pears, New Oxford-street, London; Messrs. Tiffany and Co., Regent-street, London—in addition to a large number of private residences.

ARCHITECTURAL & ARCHÆOLOGICAL SOCIETIES.

Manchester Architectural Association.—On Saturday, the 8th inst., about 40 members and friends visited the Jesse Haworth Memorial Church, recently built at Walshaw, near Bury, in Lancashire. Its exceptional features are the thoroughness with which every part of the structure has been carried out in the most durable materials, and the large amount of memorial glass of excellent quality by which the interior is adorned. The church was designed by Mr. L. Booth, F.R.I.B.A., and has been carried into execution under the supervision of Messrs. Booth and Chadwick, of Manchester.

Royal Archæological Institute. — This Institute opened its annual meetings in Edinburgh on Tuesday. At noon there was a reception of the members in the National Portrait Gallery by the president and council of the Society of Antiquaries of Scotland. The inaugural meeting took place in the lecture hall of the Royal Geographical Society, when Earl Percy, the retiring president of the institute, introduced his successor in office, Sir Herbert Maxwell, who, in his opening address, vindicated the claims of archæology to respect as the handmaiden of anthropology and history. In the afternoon the members visited Holyrood Palace under the guidance of Mr. W. Wyham, of H.M. Board of Works. In the evening the antiquarian section was opened with an address by Dr. John Evans, the chairman. A striking feature of the congress is the exhibition of the Society of Antiquaries, in the National Portrait Gallery buildings, of a collection of rubbings of sculptured monuments from various parts of Scotland by Miss Maclagan, of Ravenscroft, Stirling, a lady Associate of the Society. The collection consists of upwards of 400 rubbings mounted on 271 sheets, the largest of which is 10ft. square. No collection at all approaching this one in extent, variety, and effectiveness has ever before been made in Scotland. On Wednesday the Royal Archæological Society visited Linlithgow, and inspected St. Michael's Church and the palace. They afterwards proceeded to Stirling, and visited the castle, the East and West Churches, and other places of historic interest. In the evening Dr. T. Hodgkin opened the historical section in the National Portrait Gallery, Edinburgh, with an address on "The Relation of History to Archæology." Mr. Louis Dyer, delegate from the Archæological Institute of America, read "Notes on the Vitruvian Account of the Greek Stage."

ARCHÆOLOGICAL.

Lincoln.—The remains of a Roman villa have just been laid bare by the miners employed at the Mid-Lincolnshire Ironstone Company's works at Lincoln. From time to time extensive basement floors in tesselated pavement have been laid bare, and from tentative explorations which have just been made still more floors remain to be uncovered. One of these patches of pavements just discovered extends 48 yards northward from the main building, which had previously been broken up. The strip is 13ft. in breadth, and down its centre is a key pattern worked in blue tesseræ. On each side of this runs alternately broad ribbons of white and narrower ribbons of red tesseræ. There is another strip of pavement to the south of the above patch, which has been laid bare to the extent of 27 yards. This piece is 10ft. wide, and its western portion is cut up in patterns indicating the floors of rooms. It is evident that, from the eastern extremity of these floors, another long strip of 48 or 50 yards still remains to be uncovered. All the floors are no deeper than from 18in. to 30in. below the surface of the soil. Mr. Ramsden, the manager of the works, is keeping a coloured plan of the whole of the pavement.

Discovery of Roman Remains at Twyford, Hants.—Some interesting discoveries have been made during the last week in the course of excavations for a new house which is being built for Mr. E. Shenton, under the superintendence of Mr. B. D. Cancellor, architect, of Winchester. About a month ago a passage paved with small red tiles was discovered about 2ft. 6in. below the surface of the ground. This was 6ft. in width, and was uncovered to a length of some 14ft. or 15ft., and probably extends for some considerable distance further. The more recent excavations are some 20ft. to 30ft. west of this, and there have been discovered two chambers, evidently specimens of the ancient bath; one of th is about 8ft. by 6ft., and is paved with red ti Along one side of the pavement is a sunk char leading to an opening in the end wall for escape of water; along the other side is a ra ledge extending the whole length of chamber. The second chamber is 5ft. 3ft. 6in. (internal measurement), and aro its sides and under the paving are sp and flues for the circulation of hot air. floor of this is only 4ft. below the sur of the ground. The walls of both these cham are covered with a reddish plaster about 1 in thickness. To the east of, and between, th two chambers is a furnace with eight kiln- openings, and all in an excellent state of pre vation. The openings are 1ft. 6in. wide, 2ft. in height, and 2ft. in depth. The openings separated from one another by 18in. brick pi There is also a pavement extending eastward the first chamber, about 4ft. in width and above the level of the floor of the chamber. T is paved with square red tiles. Numerous fi and bits of broken tile were found in the cou of the excavation; also various kinds of bor horns, teeth, and ornaments, but very few coi It is probable that an alteration in the plans the new buildings will be made, so that the m interesting features of these discoveries may inclosed in the basement. Plans and measu drawings of the newly-discovered remains by Mr. B. D. Cancellor, the architect for new work.

CHIPS.

Foundation stones of a new Primitive Metho Chapel were laid at Christon Bank, Northumb land, last week. Mr. George Reavell, jun. the architect, and the contractors are Messrs. Fordy and Sons, of North Sunderland, for masor and Mr. Charles Nettleship, of Alnwick, for ot trades. The chapel will be Gothic in style, and seat 130 persons.

The foundation-stone of a Free Presbyter church was laid at Lamlash, N.B., last week. James Hamilton, of Glasgow, is the architect, Mr. John Boyd, of Ardrossan, the contractor masonry. The style will be Early English.

At the instance of the Ayrshire and Wigto shire Archæological Association, a series of exca tions is at present being conducted in the vicinit the tower that in olden days formed part of Church of St. John the Baptist, the parish chu of Ayr. In 1726 the walls of the church pro were demolished to build the steeple of the T booth, which, after standing for almost exact century, was itself removed to widen the str The floor and foundations have been uncove revealing the plan, and many carved stones, cluding a lidless stone coffin, have been found.

A report by the general manager to the Stock and Middlesbrough Joint Water Board, just issu states that the works in connection with the g gravitation scheme, which will cost over a mill sterling, are so far advanced, that Hury reser may be filled in December next.

The Skipton local board, at a special meet held on Friday, passed a resolution asking e ratepayers to sanction the promotion of a Bil Parliament to construct waterworks capable holding 110 million gallons, at an estimated cos £40,000. The scheme adopted provides fo supply from Skibeden, in accordance with a re prepared by Mr. G. H. Hill, M.I.C.E., of Sto port.

A new artificial harbour has just been compl at Leiscoes, near Oporto. The plans have b prepared by Senor Nogueira Soares, a Portugu engineer, and have been carried out by M Dauderni, Duparchy, and Co., for a little under million sterling. The port has been formed connecting some rocks and islets with the shore jetties, and the depth of water is 23ft.

A builder in Chelsea, named Kellaway, brou an action against a firm of solicitors named Bi He claimed £100,000 as damages occasioned to by following the defendant's advice, and allow himself to be made a bankrupt when there was necessity for his so doing. The defendants app to a Master and to Mr. Justice Charles to dis the action as frivolous. Both these authori decided against Messrs. Bury, who appealed, on Friday Justices Denman and Williams allo the appeal.

A new organ, presented to Lilleshall Church the Marchioness of Stafford, in memory of father, the late Earl of Rosslyn, was dedicated Wednesday week by the Archbishop of York. organ is an instrument by Messrs. Abbot and Sm of Leeds.

TO CORRESPONDENTS.

do not hold ourselves responsible for the opinions of correspondents. All communications should be wn up as briefly as possible, as there are many mants upon the space allotted to correspondents.]

is particularly requested that all drawings and all unications respecting illustrations or literary matter d be addressed to the EDITOR of the BUILDING s, 332, Strand, W.C., and not to members of the by name. Delay is not unfrequently otherwise d. All drawings and other communications are at contributors' risks, and the Editor will not rtake to pay for, or be liable for, unsought contribu-

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dvertisements for the current week must reach the e not later than 3 p.m. on Thursday. Front-page rtisements and alterations in serial advertisements t reach the office by Tuesday Morning to secure inser-

NOTICE.

nd volumes should be ordered early (price Twelve illings each), as only a limited number are done . A few bound volumes of Vols. XLI., XLIX., L., LII., LIV., LVI., LVII. LVIII., and LIX. may ll be had, price Twelve Shillings; all the other bound lumes are out of print. Most of the back numbers former volumes are, however, to be had singly. bscribers requiring any back numbers to complete lume just ended should order at once, as many of em soon run out of print.

EIVED.—C. H. and Co.—Anglican.—A. Netherton.—. M. (Manchester).—A. J. S.—E. T. Co.

Correspondence.

ENGLAND THE PIONEER HOUSE-MOVER OF THE WORLD.

To the Editor of the BUILDING NEWS.

SIR,—Mr. W. Worby Beaumont, M.Inst.C.E., tes me saying that until he read your article p. 67 he claimed that his grandfather, Mr. n. Worby, general manager of the Orwell rks, Ipswich, was, in 1848, the pioneer of the ld in moving brick houses, see p. 393, Vol. . England may, however, claim to be the t to move a stone lighthouse—i.e., at Sunder-l in 1841 (p. 393); also see *Proceedings* t.C.E., 1844, Vol. III. p. 342.

England may also claim to be the first mover a building—viz., in Throgmorton-street, City, he 16th century—p. 69 of present vol.

England may also claim to have moved the est house—i.e., Trinity House, Worcester, lt over 400 years ago—p. 69. So that after the fuss about house-moving that has been e in America, England has set the premier mple to all the world in house-moving.

Let the Benchers of Lincoln's Inn move back ir old gateway, and thus not only preserve it a relic, but also remove an obstruction to estrian traffic in Chancery-lane, and England l then be the first in the world to move one of oldest solid brick buildings, of the time of ng Charles and Ben Jonson, of great historic erest.—I am, &c., ALEX. BLACK.

P.S.—Mr. Beaumont sends a plan of the house ved in 1848. It was 28ft. by 32ft., and 21ft. h from ground level to roof plate, and weighed h furniture about 160 tons. His grandfather l him that the removal cost less than half the t of the rebuilding. Neither furniture, ckeryware, nor inmates were disturbed in the oval.

Intercommunication.

QUESTIONS.

[10599.]—**Hot-water Engineering**.—With reference to paragraph 7 of article 8 which appeared on July 31, 1891, and to previous illustrations on this subject, I shoul be very glad to learn why the cold supply should not be attached to the primary return-pipe from the hot-water cylinder on its way to the boiler, the cold supply being dipped previous to its connection to the primary return, instead of the cold supply being attached to the cylinders, as shown on pages 137 and 138, and previously? —G. C. B.

[10600.]—**Competitions.**—Can any reader give a precedent for an action taken by competitors against a board for not complying with the conditions of an advertised competition, and also who would be the best counsel to go to for an opinion?—A SUFFERER.

[10601.]—**Rendering Oaken Walnut Incombustible.**—Can any of your readers kindly inform me whether natural wood—oak or walnut—can be rendered non-combustible, without destroying its nature or appearance?—P. S.

[10602.]—**Fan-Tracery Vaulting**—Will a kind reader recommend a book wherein I shall find good examples of the method of setting out and drawing of fan-tracery vaulting, for which I should feel obliged.—STUDENT.

[10603.]—**Size of Sewer.**—I shall be obliged if any of your readers will kindly give me a formula for calculating the size of a sewer required, the quantity of water to be discharged and the inclination attainable being the only factors given.—A. C. J.

REPLIES.

[10590.]—**Triforium.**—Triforium, probably from "transforium" (transforo, to pierce), that is, "a part of building pierced across by holes or doorways," so as to form a passage. The Italian word "traforo," a tunnel, supports this view of the derivation of triforium. In the French, "trans" becomes "tré," as in trépasser—to die. Possibly, in Latin, "trivium," a cross road, should be derived from "trans," and not from "ter" and via.—A. H. D. C.

CHIPS.

The restoration of the chancel of the parish church of St. Austell is about to be commenced under the direction of Mr. G. H. Fellowes Prynne, of Plymouth and London. An oak chancel arch with supporting angels will be added. The roof is to be decorated, and the east wall over the reredos is to be painted by Fouracre and Sons, of Stonehouse, as a memorial to the late Mr. John Coode, for many years the county treasurer. Several parts of the sacred edifice have been restored and carved by Mr. Doney, a local sculptor.

Sherburn Hospital, co. Durham, is about to be enlarged from plans by Mr. C. Hodgson Fowler, F.S.A., of Durham city.

The Gewerbe-Museum of Berlin has become the purchaser of the great stained-glass windows recently discovered by accident in Leipsic, and originally belonging to the convent of Lindau in Nuremberg. The design of these windows, which are perhaps the finest specimens of German glass-painting in the first years of the 16th century, is, with some probability, attributable to Albert Dürer himself. Among the chief subjects represented, are—The Trinity adored by Angels, the Patrician Landaue kneeling in prayer, the favourite Nuremberg subject—the parable of the Wise and Foolish Virgins—the Fall of Satan, and the Sacrifice of Abraham.

Six colossal lions and griffins, intended to decorate the chief façade of the new Municipal Buildings in Bombay, were sent off from Exeter last week by Mr. Harry Hems, who is executing all the sculpture and carving on this important edifice, which is being erected from the designs of Mr. F. W. Stevens, of Bombay, and was illustrated in our issue of Nov. 7, 1880, and the 19th June last. The animals just exported are each over 8ft. high, and carved out of blocks of stone weighing between six and seven tons apiece. A stone statue of a female figure, emblematic of Bombay, is being carved by Mr. Hems, and will crown the highest gable.

The latest addition to the National Gallery is hung in Room X. on a screen, and numbered 1332. It is a supposed portrait of George, first Earl of Berkeley, by Caspar Netscher (1639-84), presented by Lord Saville. The head exhibits the small, pencilled moustache and huge curled wig of the period, and is painted on the small scale affected by the artist.

The corner stone of new kennels, which are being erected on the Scorrier estate for the Fourburrow hounds, was laid on Tuesday week by Miss K. Foster, of Truro. The contractor is Mr. John Collins, of Stithians.

Mr. Henry Irving has consented to unveil the monument to the poet Marlowe, at Canterbury, which has been executed by Mr. E. Durlon Ford, A.R.A. The ceremony is to take place on the 16th of September.

LEGAL INTELLIGENCE.

A CONTRACTOR'S CLAIM.—MORRIS v. BAYLEY AND MOORE.—At the Notts Assizes last week this case was tried. The plaintiff is a builder at Daybrook, and the defendants are trustees under the will of the late Thomas Bayley. The action was to recover £452 9s. 1d., being the balance of a contract for building eight cottages at Giltbrook, and for extras. The amount in dispute was £163 13s. 7d., the main question being whether the sum of £452 9s. 1d. fixed by the plaintiff was right, or whether £288 15s. 6d. mentioned by the defendants was correct. In March, 1890, Mr. Harriman, architect, supplied the plaintiff with plans for four cottages to be built for the defendants. The price tendered by Morris, £540, was accepted, but before the work was commenced he was asked if he would build eight cottages for £1,000. He agreed to do so, and the work was begun on the 15th of May, the contract being signed on the 3rd of June. The contract price of £1,000 had been paid, and the dispute was as to the amount of extras to be charged. Before evidence was called it was decided to refer the case to arbitration, and the judge decided that under the circumstances the plaintiff was entitled to sue on a *quantuam meruit*. He referred the matter to some person to be agreed upon, or, in case of difference of opinion, to some person named by himself, the costs of the action to abide the result.

IN RE J. DAVISON.—The Birkenhead Bankruptcy Court on Wednesday week adjourned till the 30th September the proceedings in the matter of John Davison, an Oxton builder, and a member of the Birkenhead town council, who recently disappeared and has since written from the Continent. The Official Receiver stated that the debtor had left his wife and four children destitute, although he was understood to have taken plenty of money away with him. His estate would not yield 20s. in the pound, nor anything like it; and if he did not return and give assistance in realising the estate, steps would be taken to bring him back.

IN RE GEORGE VEALE.—An application was made to Mr. Registrar Linklater on Tuesday by George Veale, a builder and contractor, carrying on business in Palatine-road, Stoke Newington, for an order of discharge. The failure occurred in November, 1889, the liabilities being returned in the statement of affairs at £3,587, and the trustee (Mr. C. J. Singleton) certified that the assets had realised £189; but that after making provision for preferential claims there would be nothing available for dividend. The evidence, and the report of the official receiver, showed that the bankrupt began business about 1879 in Leconfield-road, Highbury, with capital to a small amount. In July, 1880, he presented a petition to the Court for the liquidation of his affairs, with liabilities amounting to £2,385, and the creditors accepted a composition of 3s. in the pound. In November, 1882, the bankrupt filed a second liquidation petition, and his creditors agreed to accept a composition of 2s. 6d. in the pound on debts returned at £1,667. He subsequently continued his business at Leconfield-road until some time in the year 1888, when he removed it to Palatine-road, Stoke Newington. He attributed his present failure and the deficiency on his trading to losses on contracts and by bad debts, and to various other causes. The Official Receiver opposed the application by reason of the former insolvencies, and on the further grounds that the bankrupt had omitted to keep proper books, and that he had continued to trade after knowing himself to be insolvent. It was also submitted that he had failed to satisfactorily account for the disposition of various sums shortly before the issue of the receiving order. Mr. Registrar Linklater suspended the discharge for six years from February, 1890.

STAINED GLASS.

BOGNOR.—St. John's Church, Bognor, has just been enriched by the addition of a stained-glass window erected, by his three sisters, to the memory of the late Mr. Thomas Robinson, formerly of Bognor, the subject selected being Christ Blessing Little Children. The window, which has been carried out from designs of Mr. C. E. Savory, M.S.A., represents our Lord as standing in the act of blessing a little child held out to Him in its mother's arms.

ST. SAMPSON'S CHURCH, GUERNSEY.—A stained-glass window has just been placed in the above church in memory of the late Mr. John A. Lainé, of La Maison de Haut, and of his wife, being the gift of their two sons. It is a two-light lancet-headed window, containing two figures, the B.V.M. and St. John Evangelist. Both colouring and drawing are excellent, the style being of the 14th century. The work has been designed by Mr. Oswald Fleuss, 1, Elm-grove, Hammersmith, W.

The town council of Southport have raised the salary of the borough surveyor, Mr. Crabtree, from £350 to £400 per annum.

Our Office Table.

A SPECIAL meeting of the members of the Royal Scottish Academy was held on Saturday, Mr. John Hutchison, treasurer, in the chair, for the purpose of electing a President in succession to the late Sir W. Fettes Douglas. Mr. George Reid, R.S.A., was unanimously elected. Mr. Reid, who is a native of Aberdeen, is fifty years of age, and has been regarded for several years as the foremost portrait painter in the Scottish Academy. In the town-hall of Aberdeen there are portraits from his brush of Provosts Thomson and Sir Alexander Anderson, and of the late town clerk, Mr. John Angus. In the old Parliament Hall at Edinburgh are portraits by him of Lord President Inglis and Lord Moncrieff. The Council Chamber of Edinburgh is adorned with a portrait of the late Duncan M'Laren, by Mr. Reid; and he has painted, also full length, for the Scottish Widows' Fund offices, Mr. John Mackenzie, and for the County Buildings of Kirkcudbright, Mr. Maxwell of Munches. A half-length of his immediate predecessor in the chair hangs in the library of the Academy. As a landscapist with Dutch sympathies, he also holds a high place. Chief among Mr. Reid's figure pictures is "The Death of Savonarola," which hangs in the Art Gallery of Aberdeen. As a painter of roses he has few equals.

MR. THOMAS COOKE FOSTER, for many years connected with the staff of the *Weekly Times and Echo*, expired suddenly on Wednesday week while seated in the Adelphi Theatre, to which some years ago he was officially attached as private secretary to the Messrs. Gatti. Mr. Foster, who was 78 years of age, commenced life as an architect, and was articled at Nottingham. He came to London more than forty years ago, but subsequently abandoned the profession. He was formerly in the office of the *Illustrated News*, and subsequently in the United States for some time in the interest of that journal. His connection with the *Weekly Times* dates from 1863, prior to which year he filled engagements at Drury Lane, the Lyceum, and other Metropolitan theatres.

SIR J. W. ELLIS, M.P., has prepared a scheme with accompanying plans and sketches for widening Wellington-street and Waterloo Bridge between the Strand and the outer or water-side of the Embankment, with spur roads running east and west from the bridge down to the level of the Embankment itself. He points out that the great difficulty of dealing with the Embankment as a means of transit has been its approach from the centre of the Strand. Sir John Ellis proposes that a double spur be thrown out on the south side of the Embankment, encroaching on the water-way of the Thames, and gradually extending from a width 60ft. at the commencement of the widening near Charing Cross and the Temple piers, to 120ft. at its junction with the bridge at the first pier over the stream. These approaches would rise by a gradient of 1 in 33 to the level of the bridge, and at the same time Wellington-street would be widened from the bridge to the Strand to 90ft. by taking in the forecourts in Lancaster-place and setting back the shops on the western side, while the eastern angle next the Strand, now occupied by Messrs. Sotheran's premises, would be canted off. Wellington-street being thus improved, the Embankment approaches would be the means of reducing the traffic which might be expected to pass along the road from Catherine-street, Strand, to Southampton-row, recommended to be constructed by the County Council by the report shelved by a single vote at their last meeting. Sir J. Ellis suggests also that the island between the churches of St. Mary-le-Strand and St. Clement Danes need not be entirely removed, as it would give an unmanageably wide road, but might be rebuilt on narrower lines; but it would be difficult to lay out so narrow a strip as that which would be left to advantage. The whole block must, sooner or later, go.

MR. FRANK J. CHAMBERS, F.R.I.B.A., of College-hill, E.C., writes that last week, workmen, while digging for a drain in a yard adjoining East Paul's Wharf, Upper Thames-street, in knocking away some brickwork they made a small opening into what proved to be a subterranean passage. The tunnel commenced about 50ft. from the river Thames, and extended in a northerly direction for a distance of 110ft., the width being 14ft., and the height 8ft. The ends had apparently been bricked up at a more recent date. From all parts of the arched roof hung stalactites, in some cases a yard long. The floor was of mud. The old house on the river bank standing partly over this vault is said to be 300 years old, and to have been occupied by James I., the adjoining wharf still standing being used as barracks for his soldiers. It is evident that Mr. Chambers's "tunnel" is really the Laystall, which conveyed the sewage of the City in Elizabethan days to the Thames at Puddle-wharf.

MESSRS. ROBERT BOYLE AND SON have reprinted our descriptive articles of Mr. Robert Boyle's "Sanitary Crusade through South Africa," which appeared in our issues of June 26 and July 3, in a very beautiful little volume of pleasantly-tinted gold-edged pages, with some excellently executed illustrations, and bound in a charming serpent-guarded cover. It may probably strike many who procure this unaffectedly-written record of yeoman service done in the cause of sanitation that, apart from all business considerations, which, of course, legitimately and so successfully lend an impetus to Mr. Boyle's efforts, the palm rests rather with the ever-busy champion of hygiene in the dark places of the world than with the kid-gloved advocates of sanitary science who assemble to read pretty papers to princes and the ladies at ambitiously entitled congresses. We notice, by the way, that an interleaved addition bears witness to the unanimity with which the principal journals interested have echoed our recent condemnation of the dirty trick by which certain ill-disposed and envious persons sought to appropriate the fruits of the well deserved success Mr. Boyle has won for the firm of which he is the head.

A CONCRETE SEWER has been constructed at Mount Vernon, N.Y. As part of the line of excavation was through rock, it was decided that the sewer should have a concrete channel, with an arch of stone. Mr. W. E. Worthen, the engineer, describes the plan of construction in the *Transactions* of the American Society of Civil Engineers. The invert channel is formed by a section of vitrified pipe bedded in cement mortar on the rock or on concrete to the proper grade. On this an invert centre is placed, and concrete of 1 of Rosendale cement and 2 of sand and 4 of broken rock is rammed round the sides of the channel. After the concrete was set, the invert centre is removed and the face of the concrete is struck with a thin coat of Portland cement, well trowelled on about $\frac{1}{4}$in. thickness. A $\perp$ plumb, the base fitting the opening of channel, is placed so as to be vertical. A number of holes marked on the vertical piece give centres for describing the arch, which was 2ft. radius, and this radius, by a string or rod, was applied at different centres till one was found best adapted to the rock cut. The section of the sewer is illustrated, which is a rough egg-shape, with straight invert sides and circular arch crown. Economy was effected by this mode of construction.

THE Mayor of New York has propounded a fresh scheme for providing a site for the new city hall and other public offices, which are greatly needed there. Various plans have been devised for municipal offices, and two competitions have been held, with very small satisfaction to the architects who engaged in them; but nearly all the schemes, so far, have contemplated the placing of the new building on the City-hall Park. The park is small, and would be reduced, by the addition of another large building to those already there, almost to nothing, so that the citizens have protested successfully against the adoption of any of the plans. A proposition for taking a tract of land on Broadway failed on account of the enormous expense involved. Mayor Grant proposes that the mass of scattered buildings which now occupies portions of the park, including the old City-hall, the new Court-house, built twenty years ago, at a cost of a million and a half sterling, the Record Office, and engine-house shall be swept away, leaving a clear site, in the middle of which shall be erected a single structure, inclosing a quadrangle, and accommodating all the city and county offices now scattered through several buildings. He shows that all the room needed can be obtained in a building which will cover only 3,600sq.ft. more than the separate buildings into which the same services are now inconveniently crowded. Should this pr be adopted, the third competition with years for municipal buildings will proba instituted in New York.

CHIPS.

At a meeting of the Redditch local board, h the 11th inst., Mr. J. Favell Thorrold w pointed surveyor and inspector in the place S. Elgar Thorrold, who has resigned office the board.

The Yeovil board of guardians, acting rural sanitary authority, have instructed Bailey Denton, Son, and North, of Palace Cha Westminster, to advise upon the sewera sewage disposal of Martock and Ash, in S setshire.

The late Dr. Beaney, of Melbourne, who native of Canterbury, has left £10,000 to the and Corporation of Canterbury for the pur founding a free library, to be known as Beaney Institute for the Education of W Men," and £2,200 to the Dean and Cha Canterbury Cathedral on condition that a ta erected in an aisle to the memory of the testa

At the London County Sessions on Wedn Alfred Anslow, a carpenter, pleaded guilt charge of intimidation towards two other wor to prevent them following their employme offence arising out of a strike. Sir Peter observing that such conduct was an attack liberty of the subject, and was opposed t sentenced the prisoner to five weeks' hard lab

Considerable alterations have been made Camberwell Workhouse, London, embracin ventilation, which is now carried out on the system, the latest improved form of the paten acting air-pump ventilator being adopted f extraction of the vitiated air.

The fine new baths erected at Broughton ford, on a piece of land bounded by Great C street, Mauriel-street, and Lucy-street, wer mally opened on the 5th inst. by the Ma Salford. The baths are from a design by Mangnall and Littlewoods, of Manchester. R. Neill and Sons had the general contract f erection of the baths, the plumbing has been by Messrs. W. Harrison and Sons, and the steam service, and fittings have been furnish Messrs. T. Bradford and Co.

Mr. Isaac Booth, architect and survey Norfolk-place, Halifax, died last week at vanced age.

An appeal is being made for £779 to cl accounts in connection with the restoration Michael's, Coventry. The circular issued nection with the appeal states that the w restoring the church has at length been fully pleted at a total cost of £39,014. Payment been made to the amount of £33,077, leaving of £5,937 still due to the contractor and arc Mr. J. Thompson and Mr. J. O. Scott; and are, besides, a few small accounts owing of sa making a total of indebtedness of £5,967. M this has been raised, leaving the small balanc asked for.

The principal stone of the new Ruthin Gra School was laid on Tuesday in the Mold-ros central tower will contain the principal entra the school building proper, which consists spacious hall on the right, and on the left a se class-rooms, one of which will be used as master's class-room and library, and anothe laboratory. There will be accommodation boarders, and also 120 day boys. Mr. T Browne, Chester, is the contractor for the wh the work.

A public meeting was held at Mevagissey, wall, last week, to hear a statement from Mr. Williams, chairman of the Harbour Commissi with reference to the proposed new pier. Williams explained that Mr. Inglis, the en had prepared a report stating that the restoring the pier, which was partially dem by the blizzard in March last, would amou £11,000. It was useless to expend so large in an attempt to patch up the old pier. accordingly invited the firm of Sir John Co make a survey, prepare plans, and submit estimate for an entirely new structure, and they had mitted an estimate for work amounting to £3000 The Loan Commissioners would sanction a lo condition that a new scale of tolls was agreed the fishermen and others interested. Resolu were passed adopting the plans and agreeing new tolls.

The police commissioners of Lockerbie, have just acquired the local gasworks, estab in 1854, at a price, as fixed by the arbitrator Robert Mitchell, of Edinburgh, and Mr. Ja McGilchrist, of Edinburgh), of £4,880, or e double the nominal capital of the existin company.


ELSICH HOUSE LUDLOW
WHITEHALL NEAR SHREWSBURY
MORETON CORBET SALOP

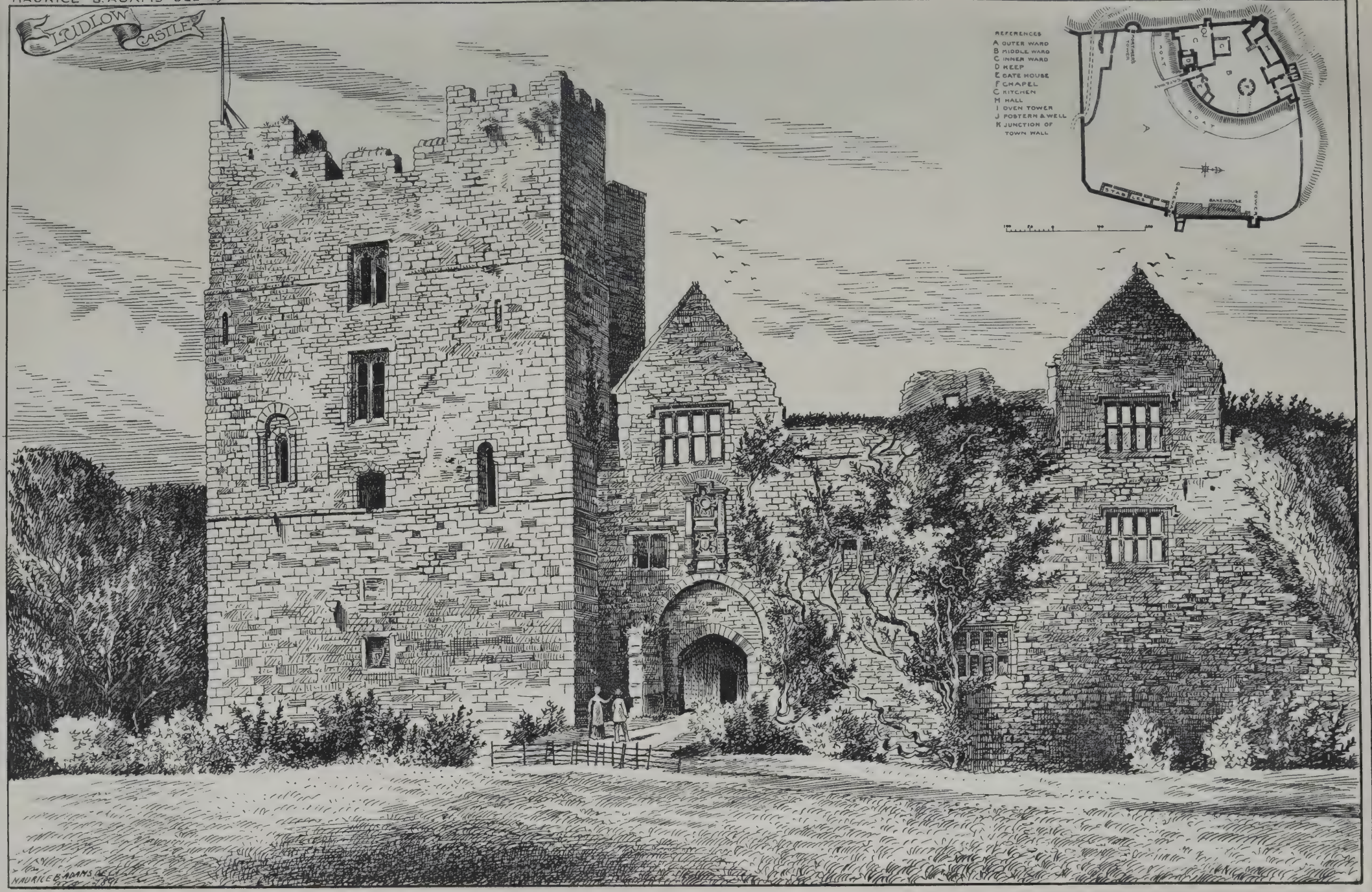


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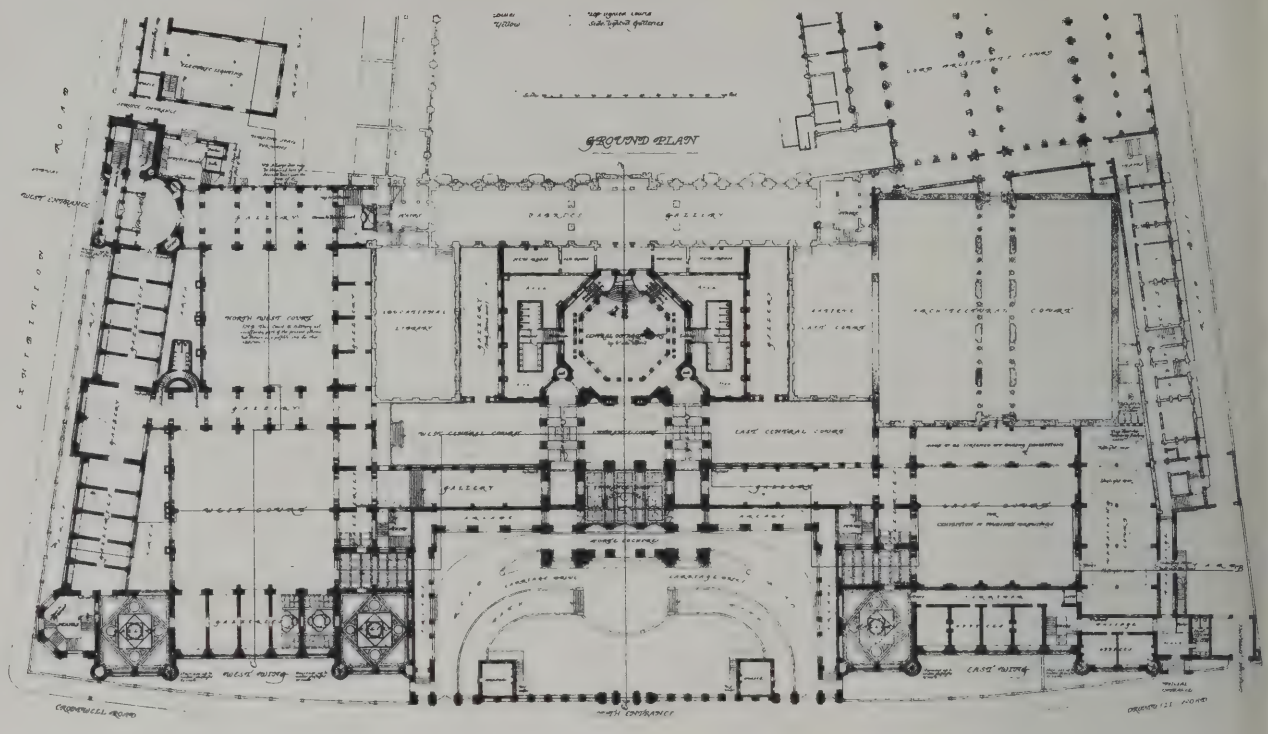
THE MARKET HALL SHREWSBURY.

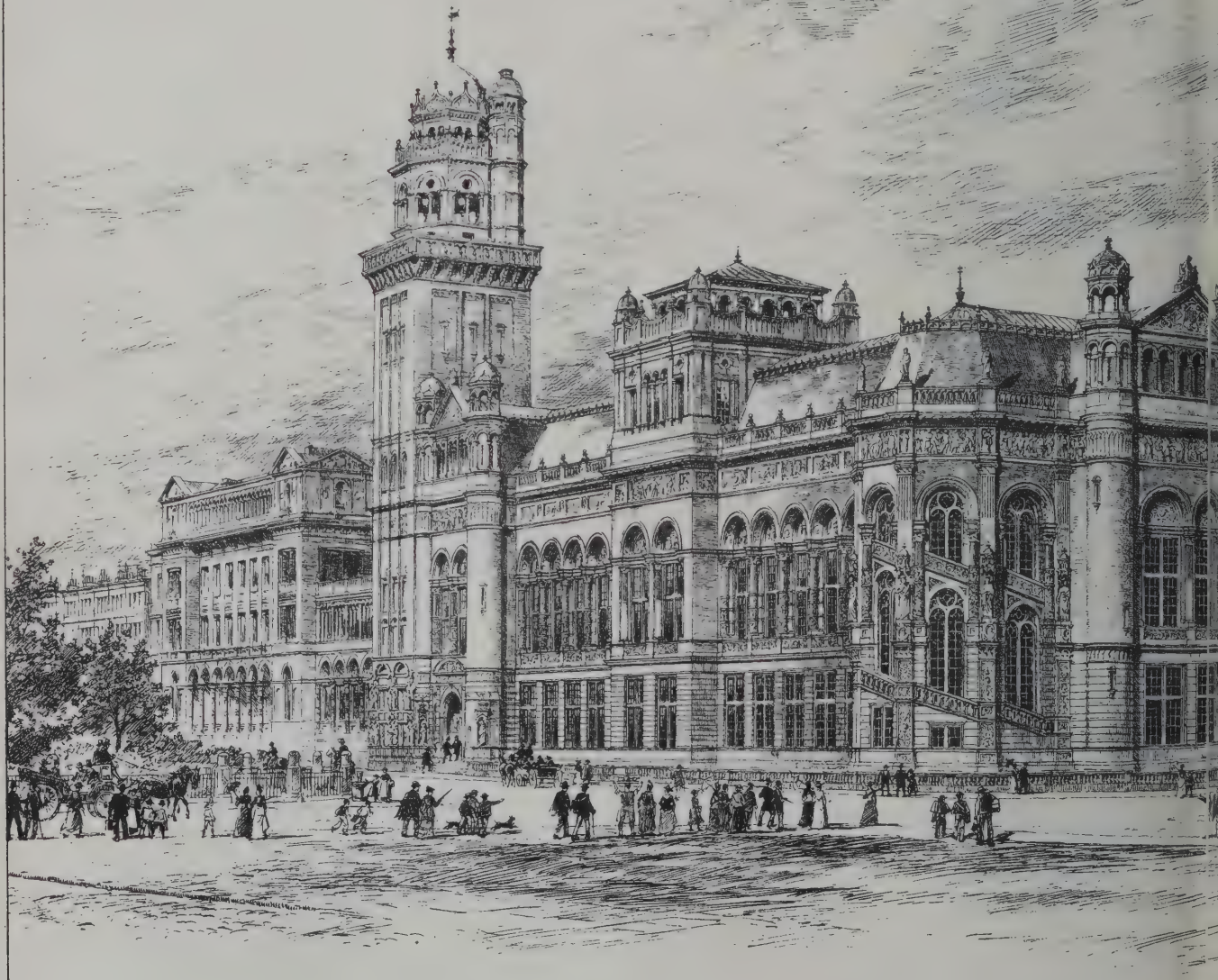




"PHOTO-TINT," by James Akerman, 6, Queen Square, London, W.C

Architectural Association Excursion in Shropshire 1891





SOUTH KENSINGT

DESIGN BY WM. M

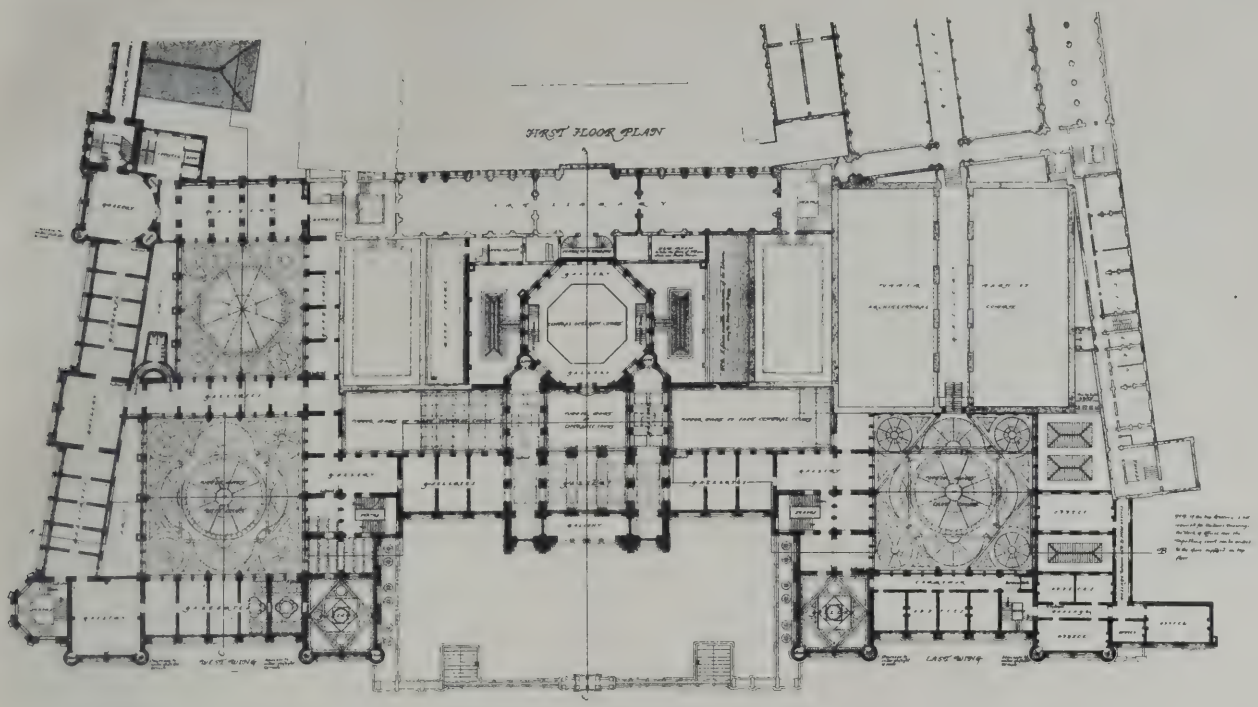




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EUM COMPETITION,

I.B.A. ARCHITECT



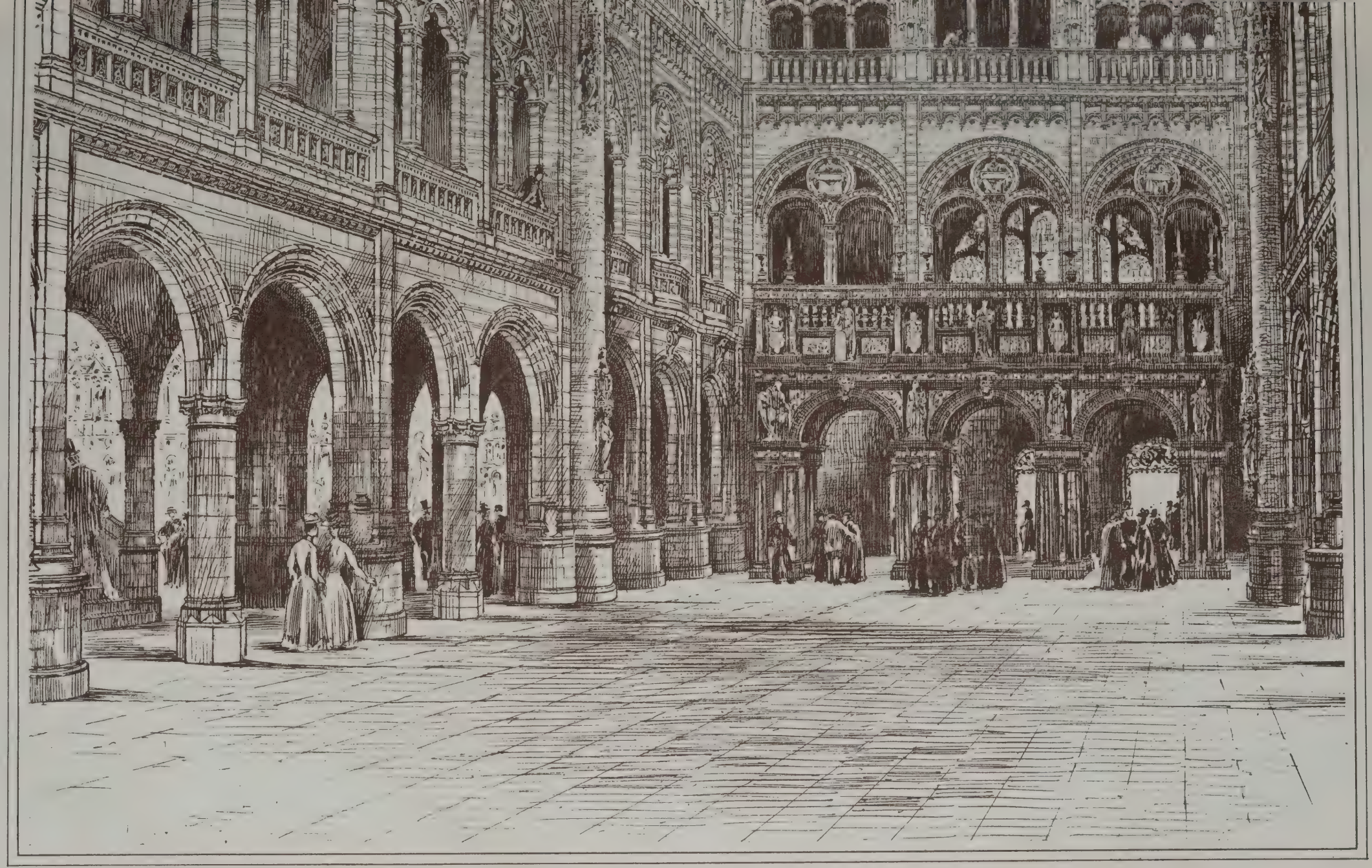


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SELECTED DESIGN FOR SOUTH KENSINGTON MUSEUM BUILDING ASTON WEBB, ARCHITECT.

VIEW OF ENTRANCE HALL LOOKING TOWARDS ENTRANCE

[E BUILDING NEWS
AND ENGINEERING JOURNAL.
VOL. LXI.—No. 1911.
FRIDAY, AUGUST 21, 1891.

HYGIENIC CONSTRUCTION.

ALKING the papers read at the recent Congress of Hygiene, of which we ve given abstracts, so far, at least, as they te to architecture, apparently very little been added to our knowledge of sanitary truction. Some of the more valuable estions have been contributed by igners. For example, F. Stübben, city itect of Cologne, laid down some useful ciples for the extension and internal rovement of towns. Before very long it will n to dawn on enlightened public opinion the extension of a town ought not to be to individual enterprise and caprice, but overned by an official department. We seen what unrestricted freedom has done ne suburbs of large towns; how tene- ts have been crowded in places where ought never to have been erected, over and ill-drained sites; how spaces able for public recreation have been ght up at fabulously low prices individuals for commercial purposes, h areas ought to have been acquired by corporation; how gasworks have been nitted to occupy areas close to crowded oughfares, and objectionable factories houses allowed to be erected on sites that uld have been turned to better account. se mistakes have brought with them y sacrifices to public health; they have lved corporations in great expenditure in fying errors of judgment and in reclaim- ites for public purposes, which might have obtained very inexpensively in the first e. We can name several corporations h have bungled in this manner, and the ropolis itself, with its divided jurisdic- s, has set a very bad example. What conditions are that make for healthful lences may be summarised as Herr ben places them—viz., sufficient width streets, sanitary construction, planted sure-grounds, cleanliness of subsoil, r, and air, water-supply, lighting means of communication, arrange- t of building blocks, sanitary plan- g. We need not discuss the import- of wide streets, though it is not one of conditions that English authorities are he habit of attaching much value to. ngst modern scientific sanitarians the nage and plumbing fixtures of a house considered to embrace all that is essen- ; and too little importance has been set n wide streets, spacious squares, and lic parks. The reason is that the pro- ional plumber and engineer have been idered to the exclusion of other agencies. theory that to make a healthy town the vidual houses must be constructed on tary principles and have properly ped drains and ventilating appliances is entirely a sound one, for the houses as s may be perfect, but the surroundings be contaminated or unhealthy. The may be badly drained and water- ed, the sewers imperfect; the air may mpure from various causes, the houses ked so closely together as to have little thing space or sunlight. We have great attention to the unit—the house— little or no attention to its environment surroundings. Other elements of health des the house have to be considered, and e are slowly being apprehended. People beginning to find that they and their dren are better for living in suburbs, re there are plenty of open spaces; that the sight of green pastures and meadow and foliage are health-giving and nerve-restoring, that even the semi-wildness of the common or heath is a valuable tonic and restorative to a jaded constitution. Everyone acknowledges the value of open-air exercise and athletic sports for limbs and muscles, yet they somehow forget that nerves and eyesight have as much need of stimulation or repose as the legs and arms. To refresh and restore the eyes, it is necessary to give them those objects of sight which tend to relax the muscular strain, and to restore the "opposites" to the vision and mind. What are the restoratives to the pent-up city clerk, artisan, or professional man? Nature, green fields, mountain scenery, seaside haunts, these are the surroundings the tired man covets who suffers from nerve exhaustion and fatigue. We can imperfectly provide some of these in towns, but not all. We see, therefore, the value of an arrangement of blocks of buildings, a municipal control of the new streets and squares, their number, size, and height. The width of a street—by which we chiefly mean the relation existing between the width of road and the height of the houses—is an important factor of health. Who that lives in a narrow street of lofty houses, generally shaded and dull, does not find its depressing effect upon the health and nerves? Statistics prove that those in narrow streets, shut out from the sun, are less healthy than those who inhabit houses well exposed to the sunlight and live in wide thoroughfares. The dweller in basements is another victim of ill-health and nervous prostration, and for similar reasons. Regarding the relative healthfulness of arrangements, it may be noticed that those blocks of buildings which are most intersected by streets enjoy the conditions favourable to health. The question of arrangement and disposition of the buildings and streets composing a town bears considerably on its health, though a point that has been overlooked by writers of papers. The direction of the streets in respect to sunlight and currents of air is another material consideration.

The importance of official measures, some positive and others negative, requires very little advocacy. As Herr Stubben says, a plan for extending a town with regard to buildings already commenced and those to be built during the next 20 years ought to be a positive measure. Such a scheme would prevent the ill-thought and jumbled laying out of new estates, whenever increase of house accommodation is called for; it would lay down in advance roads and streets, and prescribe improvements to the older parts of the town. Other measures would promote dwellings for the labouring classes, prescribe regulations for buildings, yard space, and frontage lines, height, and other things in the matter of by-laws. The negative measures would prohibit all kinds of buildings of an objectionable character, the use for dwellings of underground rooms, over-crowding, and other objectionable practices. Our usual by-laws confine themselves to structure mainly. There are no restrictions as to the class of buildings allowable in streets; thus we have many objectionable buildings of the warehouse and factory class near, and even within, residential streets. The height and line of building, though recently made subjects of legislation, are inadequately dealt with, and the laying out and extension of towns are not under control. Again, the grouping of buildings at low rentals, as treated by M. Charles Lucas, a Parisian architect, is not brought within the scope of the Building Acts. The hygienic problem has its moral as well as its sanitary side; but that aspect which concerns itself with artistic conditions, picturesqueness of groupings, pleasure-grounds, and recreative buildings is quite ignored by our statutes.

As Mr. Blashill, the London County Council's architect, says, a supply of light and fresh air to habitable rooms is not secured by the existing law in London so efficiently as it might be, as it has been legally decided light and ventilation need not come directly from the outside, and if they are admitted through another room no open space need be provided, or if it is provided, there is no power to secure that any room shall be lighted or ventilated from it. The Amendment Act of 1882 as to open spaces in the rear of dwellings is, as we have before said, very inadequate, as it is allowed to cover the space with one, story buildings. No beneficent rule can be established which does not regulate the open space attached by at least one factor, and that is the height of the building. To what an extent the principles of hygiene can be applied to architecture it would not be easy to say. There is nothing in the art necessarily opposed to health in the abstract, though some of the revivalists of defunct styles, amongst them that of the 17th century, have not thought fit to show any marked relationship between the architecture and sanitary science. Sir Arthur Blomfield's address only referred to some of the possibilities of a relationship to which the profession would do well to direct their attention. There are many things and objects of sense that have a potent influence on our minds, in soothing and giving pleasure through sensations and emotions, others that give pain. Even a well-proportioned room or door or window creates an agreeable sense; a well-designed wall paper or ceiling can produce pleasurable emotions, and these react on the physical functions, and can be made conducive to health. On the contrary, we know the effect of discordant forms, designs showing want of fitness, inharmonious colours and decorations, how they jar upon the eye or nerves of a man or woman susceptible to their influence. Concede the proposition that disagreeable objects and colours have a tendency to disturb the mind, and are, therefore, injurious to health, we must admit as a necessary corollary the converse—that artistic design is a part of hygiene, and, as such, ought to be studied and made a function. The æsthetic side of architecture will supply the reflective student with many instances of the effect on the imagination, and therefore on the health, of many kinds of agencies with which the artist can deal—a question discussed by Herbert Spencer and other philosophers who have investigated the psychological basis of the fine arts.

BRIDGE BUILDING, OLD AND NEW.

THE development of bridge construction is a fertile theme, whether we regard it as one of the many indications of advancing civilisation, or as one of the records of man's mechanical ingenuity in bridging over space. A bridge of timber or of stone must have been one of the earliest exercises of the builder or architect, for architects were bridge builders till within a comparatively recent epoch. To throw across a stream or river a few poles or logs, and to form a platform for the passage of traffic, must have been the earliest sort of bridge. Across wide rivers it became necessary to erect intermediate supports, one, two, or more, and then the necessity arose to strengthen as far as possible the logs or beams which were placed across these supports. In this manner framing or trussing began to be introduced, and the first efforts in this direction were no doubt simply to place a strut from the vertical support or pier of piles to the horizontal beam, and these oblique pieces or struts become the germ of the truss or cantilever. These primitive structures were exceedingly simple and often picturesque. By cutting off the square angle between the upright pier and platform the structure assumed at once a more pleasing and less crude outline, and many of these

simple log or hewn timber structures still remain, and are highly artistic. Let us take as an example the description given of Cæsar's bridge as given in "De Bello Gallico," Book IV., chapter xiii. It was simply constructed thus: A couple of rough logs or piles were driven into the bed of the river about 2ft. apart on each side of the intended bridge, sloping a little inwards at the top; across these pile-piers, fastened together by a cross piece at the top, were laid the transverse beams to carry the bridge floor, each end being laid in between two braces on each side, and in consequence of these being in different directions and fastened on sides, the one opposite the other, so great was the strength of the work and such the arrangement of the materials that in proportion as the greater body of water dashed against the bridge, so much the closer were its parts held together." Several attempts to restore this design from Cæsar's description have been made, even by such men as Alberti, Palladio, and others, though their interpretations have varied. Cæsar's army crossed the Rhine on this structure, which had been commenced only ten days before. Other ancient bridges of which we have records show timber construction. One by Trajan over the Danube was of concentric ribs of timber connected by radial pieces, each arch about 100ft. span, of which there were several. Many old Mediæval bridges are shown in paintings and old engravings, and these were generally of piles with the strut arrangement. Palladio was a great bridge builder, and has given us designs for bridges in his "Treatise on Architecture." The bridge over the Brenta near Bassano built by him was formed of five spans, the floor beam strengthened by struts and straining pieces, with a covered colonnaded roadway. He erected another over the Cismone of about 108ft. span without piers, which was a timber truss not unlike a queen-post roof with tie-beam queen-posts and three intermediate verticals with raking struts in each bay. Another design is a segmental arch or truss, composed of two concentric stringers or ribs, with radial pieces and cross-bracing between each. These radiating bays represent framed voussoirs, and the design may be regarded as the prototype of all framed timber and iron arched trusses of its class. Engravings of these are also given in Tredgold's "Treatise on Carpentry." Of the curved rib or wooden arch type the Americans have been great adapters. One of 250ft. span across the Portsmouth River, of three concentric ribs, connected by radial pieces, with mortices and wedges, somewhat on the principle of Palladio's design, is described and illustrated in Tredgold's work (last edition); but each rib is made of pieces 12ft. or 13ft. long, fastened by dovetailed keys and wedges, breaking joint. The wooden arch bridge over the Delaware at Trenton, near Philadelphia, of 200ft., 180ft., and 160ft. spans, with a roadway suspended by iron rods; the Susquehanna bridge at Columbia, and some fine structures in Germany—notably the Bridge of Bamberg, the Freysingen over the Isar—show the considerable spans and strength that have been attained by the use of arched ribs. The last-named are of different curvature, the flatter ribs on the upper or outer side bolted together. Other bridges combine the lattice with the rib. Different methods of forming or constructing the curved ribs have been adopted. In some of these the ribs are bent by screws, and then scarfed and bolted to the others, as in the method used by Wiebeking in the last-mentioned structures.

It is impossible to pass these developments of construction in review without seeing the steps of the transition from the early trussed bridge to that of the arched rib. The principle of simple compression was kept in view. As economy of material had to be considered, it was necessary to employ moderately small pieces of timber, and either to construct an arch of timber like that of the voussoir framed bridge of Palladio, or to build the ribs by bolting or uniting several pieces together, as Wiebeking did. We certainly cannot commend the masking of the fronts of the ribs by boarding to imitate masonry, as in the bridges at Bamberg and Freysingen, and several other structures of this last bridge builder; and generally it must be admitted regretfully that advanced skill is often accompanied by a loss of taste. The older ribbed bridges exhibited the construction, and were pleasing structures of wood; but with the desire to bridge over large spans, the attempt to represent stone was made, and the art of the bridge architect declined.

Stone bridge construction may claim as ancient a record. Upon Trajan's Column is represented one of the oldest bridges over the Tiber, the Ponte de' quattro Capi, a two-semicircular-arched structure, with central-pierced pier, built 62 B.C. Aqueduct bridges of double tiers of arches are noteworthy amongst the works of the Romans. Stowe describes a fine masonry bridge at Stratford-le-Bow as a "rare piece of work, for before that the like had never been seen in England." Many old Mediæval bridges attest the architectural skill of the masons, and there are few rivers which have not been spanned by bridges of double span with central pier and chapel dedicated to some saint. As a type of the Mediæval bridge of small span, we may cite the remains of the Abbot's Bridge connected with the monastery of Bury St. Edmund's, with its three pointed arches springing from buttress piers. Another picturesque structure is the Mediæval bridge at Burford, Oxon, having small circular arches, triangular recesses over the piers, and coped parapet, a structure quaint and interesting; also that at Bradford-on-Avon, with its mass house or chapel on the central pier, which forms a projection corbelled out and covered by a square dome. Triangular buttresses forming cutwaters are noticed, together with pointed arches, moulded below over the openings. These are typical examples, but a more important Mediæval structure of stone is the Bridge of Valentia, Cahors, with its embrasured and embattled towers and projecting triangular recesses. These structures are giving way to bridges of iron, having wider water-ways and offering less obstruction to river traffic and the flow of rivers; but in other respects the substitution has not been unattended with disadvantages. For durability and permanence we may say that our stone and granite bridges, like those of London Bridge and Waterloo Bridge, will stand when more recent iron bridges, like Westminster or Blackfriars, have become seriously impaired by the action of the atmosphere. The constant need of examination, cleaning, and painting is a source of expense in the maintenance of iron structures, which is saved in the case of stone bridges. In both of them the stability of the foundation of the piers is essential.

In iron bridge construction development has been rapid. Engineers have followed the lines and principles of timber. There is the lattice which represents the level or horizontal beam, the cast-iron arch which follows the method of timber arches, and which mainly depends on abutments, the wrought iron plate arched rib, and the cantilever system of construction. Cast iron naturally preceded wrought iron and steel. In 1777 Abraham Darby is said to have built the first cast iron bridge on record across the Severn at Coalbrookdale. The arch was nearly a semicircle, with a chord of 100ft. The fine bridge over the Wear, with a span of 240ft., was erected in 1795, also of cast iron. One of the largest arched bridges of this material is Southwark Bridge, over the Thames, designed by Rennie in 1818. At Buildwas Telford had erected another. The Victoria railway bridge over the Thames, carrying the Chatham and Dover and Brighto[n] and the new railway bridge at Bla[ckfriars] are examples of arches of iron, e[ach] being made up of several segments [bolted] together, which form so many vo[ussoirs]. Wrought iron and steel have offer[ed] siderable advantages for bridges [of] spans. Despite other forms of girder [bridges] such as those of open lattice we[b] curved upper flanges, the arch still h[olds] own. The cantilever form has be[come] favourite with engineers, and the F[orth] bridge is the most conspicuous exa[mple] this country, but its principle has been [used] for centuries in the East. A treatise pu[blished] in 1811 by Thomas Pope, published [in] York, speaks of the "superior adv[antage] of the flying lever bridge"—a form [of con]struction known for centuries in Ch[ina] Japan, which was a cantilever bri[dge] timber. But we wait for the artis[tic de]velopment. Increase of span has be[en] one aim of the engineer; but it ha[s been] fatal to the artistic sense. The wid[e span] like the plate-glass window, has banis[hed] architectural effort. The very ten[acity] steel is prejudicial to an effective tre[atment] besides favouring intricacy and com[plexity] of structure. At present, at least th[ere] seems little opportunity for the ar[tist] so long as existing trammels are sub[mitted] to. Encouragement there is, howe[ver], the fact we have shown that iron co[nstruc]tion has, after all, been an evolutio[n from] timber and stone types, and that as s[oon as] theories of construction are brought [under] the notice of the architect, even ste[el may] yet give rise to a style of bridge const[ruction] combining simplicity and elegance [with] lightness and strength.

THE SYMBOLISM AND IC[ONO]GRAPHY OF EARLY AND [MEDI]ÆVAL CHRISTIAN ART.—XV.

By George Ashdown Audsley, F.R.I.A
(Author of "Handbook of Christian Symbolism" and several works on Architecture and Art.)

PORTRAITURES OF GOD THE FATHER.

THE brief notes given in our previous article are probably sufficient to acquaint the student of Christian Iconography with all the salient points connected with the divine Hand—the sole symbol of God the Father met with in Christian art. Accordingly, we may now direct his attention to portraitures of God the Father, and Christ iconography generally. As we have already said, prior to the 12th century Christian artists showed no disposition to represent the First Person of the Trinity in the form of a portraiture, or in the likeness of man. Didron is very emphatic on this matter, he says:—"During the first centuries of Christianity, even so late as the 12th century, no portraits of God the Father are to be seen in works of art. His presence is intimated only by a hand issuing from the clouds from heaven." Didron's great knowledge and deep study of Christian Iconography invest his statements with an authority which the student must recognise, and it is only in rare cases that any doubt can arise regarding the truth and general accuracy of his statements and conclusions. We have certainly ventured to question his views on the signification of the rays or bars on the field of the divine nimbus, and we think with sufficient reason; but we know of no other iconographic matter on which our respective views materially differ.

The portraitures of God the Father may be arranged into three groups. The first comprises those in which the head of the Deity is only depicted; the second group embraces half-length figures, usually represented from the waist upwards, but sometimes comprising the head, shoulders and arms only; and the third group presents full-length figures, either erect or sitting

might naturally be expected that the of God the Father would always be l, in Christian art, of a highly dis-ve type, having a treatment peculiar :self which would render miscon-)n of the artist's intention im-)le; such, however, is not the The visage of God the Father dif-:onsiderably in different portraitures, uch so, indeed, that it is not always at first sight to decide whether the or Second Person of the Trinity is ded by the artist. In certain repre-tions of the Holy Trinity, the features th the Father and the Son are as nearly ical as the skill of the limner could them. Didron gives a good example s treatment, from a French miniature, ited in the early part of the 13th ry. In representations of the Trinity, however, generally easy to distinguish 'ersons, for even when the faces and s bear no distinctive character, and the are identical, there is commonly an ute in the hands of one or other of the ns which serves as a more or less direct For instance, in the miniature just n of, one of the figures holds a staff similar to the Cross of the Resurrec-but without the usual small banner; his attribute would seem, in the lan-of iconographic art, to clearly indicate he Son: but here some new difficulties which we may point out in the manner n puts them. He says:—"As early e 14th century, and especially in the tures of manuscripts, one can observe the ncy strongly displayed amongst the ar-f the period to give finally a special figure iovah. Nothing can be more curious to observe the timid and successive of an art which, until then, had dis-l no desire or had failed to depict in atisfactory manner the Omnipotent ity, God the Father, the Creator. try more and more to characterise n a marked way, and to distinguish ortraitures from those of God the Son. eally assists at the birth and at the pment of the image of the Eternal r. At first, as we have seen, there is ntity between the figures of the Father ie Son; it is impossible to distinguish The similitude is as perfect as that ing between two copies of the same" At this point Didron directs atten-a miniature, executed in the end of th century, representing the Creation am by the co-operation of the three ns of the Trinity, in which it is abso-impossible for one to distinguish of the figures is intended for the r and which for the Son. Then, ng to the Trinity in the Early 13th-y French miniature, of which we have , he says:—"Both the Father and n are bearded, and cannot be distin-d one from the other. Is it the Father seated? But He holds in His hand oss of the Resurrection which is in-ly the attribute of Christ. Is it the But He is seated on the left hand of ner Person; and according to Scrip-he Son's place is on the right hand of ie Father. Besides all this, these two s of the Trinity are represented as of ne age, and alike in figure and coun-e."

to the end of the 13th century, the an artists very rarely sought to im-distinctive character to the face of e Father; and in many instances we works of the 14th century, figures of ther with the countenance which one lly recognises as that given by tradi-the Son. Such a practice of necessity some confusion of ideas in the mind of ung student of Christian art. The nich one commonly meets with in the portraitures is youthful, with long nd with a short beard and a moustache. The expression is open and benevolent. The face is sometimes beardless, as in a French miniature representing God the Father in Glory, in an initial letter of a manuscript of the 11th century. Such a countenance is of course quite appropriate, according to the accepted canons of art, to Christ, but hardly so to God the Father. We shall show presently that the youthful, bearded type of face is the one adopted by the artist for the portraitures of God the Father in the interesting scenes of the Creation which decorate the walls of the nave of the Cathedral of Monreale. Didron alludes to a bas-relief on the lower part of the sanctuary of the Church of Saint-Saturnin, at Toulouse. In this work, God the Father is represented inclosed in a lenticular aureole, attended on his right-hand by a cherubim, around whom is inscribed the words, "Ad dextram Patris cherubin stat cuncta potentis"; and on his left hand by a seraphim, round whom are the words, "Possidet inde sacram seraphin sine fine sinistram." The face of God the Father is beardless, and its features are soft, and its expression is benevolent. The whole figure strongly resembles that of Christ, as met with on the early sarcophagi, the fresco paintings in the Catacombs, and the most ancient illuminated manuscripts. The head is invested with the tri-radiated nimbus, upon the lateral rays of which are inscribed the two Greek letters α, ω. The figure is surrounded by the four symbols of the Evangelists, and carries an open book containing the words, "Pax vobis." By the inscription this portraiture is clearly proved to be that of God the Father, whilst it has a semblance of God the Son. It addition, the book, evidently intended for the Gospels, containing the words of the salutation of Christ to His Apostles, seems to identify the figure with God the Son. Has this been, on the part of the artist, an intentional rendering of the Father under the semblance of the Son; or is it simply a proof that the artist could not, by any means then recognised in art, individualise the Father by a distinctive treatment? We incline to the latter idea, for he has indicated his intention by the inscription round the cherubim and the letters on the nimbus. But we must acknowledge that the former may be the correct explanation; for it is impossible to study Christian Iconography without becoming impressed by the continued preference given by artists to portraitures of Christ, and the reluctance displayed to depict in a distinct manner those of God the Father. While on this rather important subject we may give our readers some very pertinent remarks by Didron. He says: "It is easy to understand how the Father, the Son, and the Holy Spirit might concur in the same actions, and manifest Themselves at the same time in the various events recorded in the Old Testament, because the Trinity is doctrinally indivisible, and every act performed by one of the Persons is performed collectively by the three persons of the Trinity. From the moment, however, that a single Person is represented in art, it would seem fit that God the Father alone should be shown in the scenes of the Creation, just as God the Son should appear in the scenes of His Passion, and God the Holy Ghost at Pentecost. It seems an extraordinary thing to represent God the Son alone creating Adam and Eve. Historically speaking, it is an anachronism, for the Son, Jesus Christ, had not then been born in His human nature. Still, nothing is more common than to see Jesus Christ taking the place of God the Father, and creating the world alone, commanding Noah to build the ark, arresting the hand of Abraham raised to sacrifice Isaac, and speaking to Moses from the midst of the burning bush.

"Further, it would seem that artists, when they essayed to represent God the Father as conversing with Abraham, Moses, the prophets, and the kings, felt restrained by fear and awe, and ventured to depict a portion only of the figure—the hand, for instance, and at other times the face, more rarely the bust, and very seldom the entire body. Thus the figure of God the Son either supplants that of the Father, in representations of acts recorded to have been directly performed by the latter, or the smallest portion of God the Father's person is delineated, or He is veiled or altogether omitted . . . . In the first place, God the Son is depicted instead of God the Father. It will be sufficient to observe here that Christ shows Himself in ancient art under two perfectly distinct forms. Either, as on the early sarcophagi, on certain Greek fresco paintings, and in some sculptures executed under Byzantine influence, He is youthful, beardless, an adolescent of from fifteen to eighteen years of age, with feet usually sandalled and occasionally bare, with long hair falling on the shoulders, and without a nimbus; or, as is more commonly the case, particularly in Western art, He is represented about thirty or thirty-three years of age, as at the time of His Crucifixion, with a rather long face having a short beard, hair of moderate length and parted in the centre of the forehead, the countenance sweet but with a melancholy expression, the head invested with the divine nimbus, the feet bare, and clothed in a long robe and mantle. In seeing either of these two portraitures which have been consecrated to Jesus Christ, the Saviour, it is impossible to mistake them or confuse them with portraitures of any other Person. Besides, not only is the expression of the face a sufficient characteristic; but to prevent any mistake, His name is frequently written in some position close to the portraiture, or round the head, either at full length, in an abridged form, or as a monogram.

"Now, in a great number of monuments representing the Creation, and those Old Testament scenes in which God the Father is the chief actor—it is not the Father who is portrayed, but God the Son, clearly to be recognised by the hieratical character of the face, and the names inscribed. Christ, as has just been said, is thus represented youthful and beardless, on a multitude of marble sarcophagi belonging to the early epoch of the Christian era—from the fourth to the eighth century. There can be no question that the portraiture is intended for that of Christ, for amongst the subject represented on those sarcophagi, we find the raising of Lazarus, the restoration of sight to the blind man, the cure of the paralytic, the miraculous feeding of the multitude, the conversation with the woman of Samaria, the triumphant entry in Jerusalem, the appearance before Pilate, and the preaching to the Apostles; and the Person represented as raising the dead, restoring the sight, healing the diseased, multiplying the loaves and fishes, journeying in triumph, standing before Pilate in his judgment-hall, and preaching to his followers, is the same beardless youth of whom we have spoken—it is Christ in His adolescence. Sculptured on the same monuments, and usually on the left side, are subjects parallel to those just enumerated. God is here seen condemning Adam and Eve to labour, commanding Noah, arresting the hand of Abraham, giving the Law to Moses; and God is invariably represented by the same beardless youth, who, in the adjoining compartments, raises Lazarus from the dead, and who sends his Apostles to preach throughout the world. It is God the Son who in these Old Testament subjects takes the place of God the Father."

Didron gives an interesting illustration, taken from an early Christian sarcophagus, preserved in the Vatican. Three figures are represented—that on the left being intended

for Adam, and that on the right, a nude female, being Eve. The central figure—youthful, beardless, clothed, and holding in the right hand some ears of corn, and in the left a lamb, is evidently God, condemning Adam to till the ground which shall bring forth such ears of corn as He holds towards him, and Eve to spin into threads the fleece of the lamb He presents to her. Didron pertinently remarks:—"One might imagine the Deity speaking to Adam and Eve to be intended for God the Father, although it may seem singular to see the 'Ancient of Days,' as He is called in the Bible, and by the Greeks (ὁ παλαιὸς τῶν ἡμερῶν), scarcely past the age of infancy; and it might reasonably be thought that, adhering in this respect to the practice of the ancient Greeks, the early Christians had represented God the Father, the Jehovah, as youthful and beardless, in order to convey the idea of the unchangeableness of the Deity—He who never can become old, but lives on in everlasting youth." Didron here admits that the intention of the early artist is open to doubt, and it is probable that the idea above expressed would be favoured, were it not for the fact that in numerous other works, in which the scenes of the Creation are depicted, the Creator is distinctly rendered in the likeness of Christ. Didron furnishes an admirable instance of this from an ivory carving of the 12th or 13th century. In this work Adam is represented as lying on the ground lifeless; and above him, in a circular inscribed aureole, is a half-length figure of Christ stretching forth the right hand, in the act of blessing Adam. The head is invested with the tri-radiated nimbus. Didron says:—"This illustration leaves no doubt that it is indeed Christ who is represented presiding over the work of creation; for here the Deity is shown in the act of creating Adam the first born (Ἀδὰμ ὁ πρωτόπλαστος), and this Deity is unquestionably Jesus Christ, as is proved by the monograms of His name IC, XC, inscribed on the field of the circular aureole whence He appears to issue."

It is noteworthy that we find in the Greek *Guide to Painting*, the following directions for the representation of Moses and the burning bush: "Moses untying his sandals. Sheep stand around. In front of him a burning bush, in the middle and rising from the top of which is the Virgin holding the infant Jesus; close to her an angel, who looks towards Moses. At the other side of the bush, Moses is again depicted, one hand is outstretched, while the other holds a rod." This is a highly curious direction from the works of the great Greek painter, Panselinos (see Article II.), and clearly proves that so late as the 11th century it was customary to substitute figures of God the Son for those of God the Father in Old Testament subjects. Why the Virgin and Child should be represented in the burning bush is not easily understood. Didron assures us, and his deep researches into Byzantine art give his words great weight, that the Greeks, or the artists of the Eastern Church, not only substitute Christ for God the Father, but even the Virgin Mary, and that, too, in scenes which took place eleven hundred years before her birth.

We may leave for the present the consideration of the early portraitures of the Deity, in which artists have or have not desired to represent God the Father in His proper Person, or in which artists have intentionally or inadvertently substituted for the figure of God the Father, the Creator, that of God the Son, and turn our attention to later works in which the portraitures of God the Father assume unmistakable characteristics.

As might be reasonably expected, when artists seriously essayed to depict God the Father, the Creator of the universe, the "Ancient of Days," they chose a figure and a countenance which carried the marks of age, combined with vigour and high intellectual powers. The age carried with it no evidences of failing bodily or mental strength. To convey through painting or sculpture any adequate idea of the unimaginable and unapproachable Deity, invisible and omnipresent, by representing Him in the form of a man, was in the middle ages, and, indeed, still remains, a task never to be accomplished. The artists of the early epochs of Christianity fully realised this, whilst those of later centuries must have keenly felt it as they held the brush or chisel.

In the 15th century we find the countenance of God the Father decided artists. In the accompanying illu Fig. 48, from the fresco by Paolo U the Dominican Monastery of St Novella at Florence, a half-leng



Fig. 48.

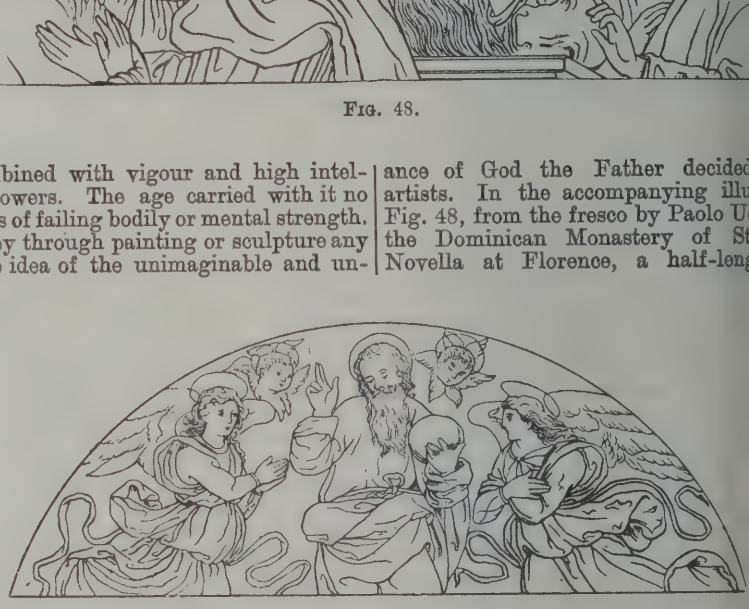


Fig. 49.

traiture of God the Father is depicte from the clouds of heaven, and ble sacrifice of Noah. The figure is under the centre of the rainbo almost incloses the entire subject

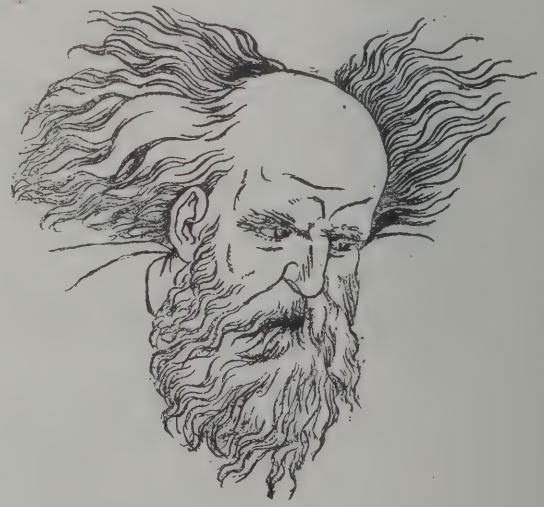


Fig. 50.

be observed that the countenance o Father is that of a man somewha prime of life, but at the period intellectual power. This fresco wa

ıe 15th century. The illustration given
ly a portion of the work.
Fig. 49, which is from the upper portion
painting of the Virgin and Child, an
y oil painting by Raphael, originally
uted for the Convent of St. Antonio di
ıa, at Perugia. Here God the Father is
:ted as a venerable man with a long,
ed beard, holding in His left hand the
and blessing with His right hand. This
: was painted at the close of the 15th
ury. In the painting by Pietro Peru-
of the Virgin and Child, with St. John
Baptist and St. Sebastian, preserved in
Florence Gallery, an almost identical
e of God the Father appears.
the reader will refer to Fig. 16 (Article
, he will find a portraiture of God the
er, issuing from clouds, behind a cross
hich Christ hangs. The countenance is
rable, with flowing beard and hair, and
ead is invested with a triangular nim-
This is probably a work of the end
ıe 13th century, but it may be later.
n, on referring to Fig. 19 (Article
), he will find another portraiture
hich the venerable head has flow-
hair of unusual length, but with a
beard. In Fig. 7 (Article V.) is shown
nity from an illuminated manuscript of
6th century, in which God the Father
tinguished from the other Persons both
ze and age. Here, however, the Holy
t closely resembles the Father both in
nent and in appearance of age.
rhaps the most striking type of counten-
given to God the Father, in mediæval
s that represented by the portraiture in
ainting of the "Passage of the Israelites
gh the Red Sea," by Ludovico Mazzolini
rrara, dated 1521. Here God is depicted
g from clouds, and stretching forth His
towards the host of the Egyptians,
aken by the returning waters. The
of this portraiture is given in Fig. 50.

(*To be continued.*)

THE CONGRESS OF HYGIENE.

IS congress, of which we reported the
earlier proceedings in our last issue,
11-3, closed its meetings on Monday.
g the more interesting of the papers read
later days was one on

STATUTORY EXAMINATION AND REGISTRATION OF ARCHITECTS,

by Mr. W. Howard Seth-Smith, President
Society of Architects, on Thursday after-
before Section IX., that of State Hygiene.
uthor remarked that the difference of
n on this subject in the architectural pro-
was not on the question as to whether a
ystematic and thorough training of archi-
as required; all admitted that education
e regarded as the basis of progress. The
n dispute was as to whether any test of the
g all agreed to be necessary should be
, and, if so, whether that test should be
ompulsory. All would concur with him
irming that, failing to possess the
ualification, a person had no right
ume the title of architect. A few
rs of the profession were opposed
examinations and diplomas on the ground
tistic qualities could not be brought to the
examination; but they lost sight of a
ıental principle—that architects' oppor-
s of practice were dependent upon the
nce of the public in their qualification to
usted with commissions. A man was not
rily a worse designer because he was an
lished constructor. They must remember
at they could not regulate the training of
fession generally on the lines laid down
e dozen exceptionally able men. They
s in all other professions, deal with the
the average man. The certain result of
ccess of the anti-examination movement
be that those proposing to build would
o the builder in the first place, and if an
t were employed at all on the work he
be called in, not by the client, but by
tractor to decorate his plans and construction. The author referred those who wished for further information on the subject of the proposed scheme of architects' registration to a paper read by Mr. H. Roumieu Gough in 1888, and another on the "Legal Registration of Architects," given by Mr. J. Wreghitt Connon, of Leeds, in the same year, and also to his own paper read in 1886. Mr. Seth-Smith briefly sketched the principles of statutory registration, showing that these were precisely those which led the Royal Institute of British Architects to establish test examinations, and then at a given date to close their doors against all who did not pass those examinations. The author gave several reasons why such a Bill ought to be passed. There were precedents for taking such a step in the fact that already about a dozen Acts registering other professions had been passed. The step taken by the Institute of Architects in establishing an examination before admission to membership conceded the principle of tests; but unless a general measure were passed the public would not have confidence in the Institute scheme of examination, especially as that body represented only a small proportion of the 10,000 architects practising in the United Kingdom. Under present circumstances it was preposterous to pass enactments imposing penalties for breaches of sanitary conditions in our houses. He further showed that examinations were already provided by law for candidates for metropolitan district surveyorships. He concluded by moving "That this meeting cordially approves of the principles of the statutory examination and registration of architects." This was seconded by Dr. George Reid, medical officer of health for Staffordshire.

A discussion followed, in which Mr. Arthur Cates, Mr. Mark H. Judge, and others took part, and eventually the resolution was carried by 22 votes to 14. A further resolution moved by Mr. M. H. Judge, and seconded by Mr. W. J. Fletcher, was carried, "That it is desirable that architects should be registered before being appointed to any public office."

At a meeting of the Architectural Section on the following day, the President of that section called attention to the fact that this resolution had been carried in an adjoining room, and it was moved by Dr. Sykes, and seconded by Mr. Ernest Turner, F.R.I.B.A., "That the members of the Architectural Section desire to consider the resolution adopted by the section on State Hygiene, approving of the statutory examination and registration of architects before definite adoption by resolution of the Congress, and that they are of opinion that this question should have been referred to Section VI.—Architecture in relation to Hygiene."

ASYLUM ARRANGEMENT AND CONSTRUCTION.

A paper on this subject was read on Friday by Mr. George T. Hine, F.R.I.B.A. He showed that asylum construction differed from other work in demanding consideration of the mental condition as well as of the physical well-being of the insane; and this necessitated in the architect some study of their disease and habits. Much might, he thought, be done towards the cure of insanity by careful designing and construction of the asylum; but if great success was to be attained, the architect should not be too closely restricted in cost. For the theme of his paper the pauper institution was selected. The author proceeds to explain the principles in the selection of site: elevation, aspect, nature of soil, and water supply. In the general arrangement of an asylum, the first question to be determined was the principle on which it should be built. In this country, asylums were built either on the "pavilion" principle, where the different blocks were connected together, and communicated with the administrative centre by one-story corridors, or as continuous buildings—the latter being the most common and convenient plan for small asylums. Another form of asylum of recent adoption in America, and on the European continent, was that of entirely detached blocks, with a central or main building, comprising a number of villas, in which patients could be effectually segregated. When the constructional principle was determined, the first care should be to arrange the wards in the best positions for aspect, light, and air, and all within easy reach of the administrative centre. It was also important that the wards should be arranged so that the medical officers in their rounds might not have to retrace their steps unnecessarily. The position of the wards was a matter of equal importance. The day-rooms should all, if possible, have a southern aspect; certainly every ward should have one or more day-rooms to the south, and the blocks should not be built to look out on to one another. In large asylums this almost necessitated a plan on the "echelon" principle, and in very large buildings even this required modification, or the length of the corridors would become quite impracticable. In all asylums, unless built for special cases, there should be accommodation for the following: 1. Sick and infirm, including a small ward for newly-admitted patients. 2. Acute or refractory cases. 3. Epileptics. 4. Quiet and working patients. Some of these wards again admitted of further subdivision. The infirmary wards, which, including the reception ward, should generally provide accommodation for one-fourth the total number of patients, were best placed nearest to the administrative centre and to the medical officer's rooms, and should not exceed two stories in height; or, if three, the top floor should be devoted to dormitories for quiet patients. Each ward should be self-contained on a floor, and should comprise one or more roomy dormitories, one with a southern aspect for bedridden patients, and with windows on at least two sides to allow of cross-ventilation, as, indeed, should be the case in all dormitories where practicable. At least two comfortable day-rooms should be provided for convalescents, one especially for dining in. The number of separate single rooms in an asylum was a point about which there was much diversity of opinion. Generally, if the dormitories were numerous and moderate in size, single rooms for one-fifth of the total number of patients would be sufficient. Single rooms should have shutters to the windows, and, except in the infirmaries, no single room should be warmed by open fireplaces. Doors without inspection holes or shutters were best. In epileptic wards a narrow panel or other clear opening had to be left, to allow of an attendant hearing a patient when in a fit; but in other cases inspection holes or shutters suggested espionage, and were therefore undesirable, particularly as it was an easy matter to use a silent lock actuated by the handle. The infirmary should have, in addition to the single rooms last named, rooms for attendants, excluding night attendants, who should be housed in a block by themselves in a quiet quarter; also lavatories, storerooms, and water-closet annexe, as with all the other wards, and, in addition to these, bath and dressing rooms. Infirmary patients should have separate bath-rooms in their wards. Each ward should also have a scullery, fitted with a small range, washing-up sink, and cupboards for crockery and utensils. The water-closet annexe in the infirmary, as in all other blocks, should be constructed in a spur, separated from the building by a cross-ventilated passage. It should include closets, in the proportion of one to ten or twelve patients, with an additional one for attendants, a small room for slop-sink and brushes, another for dirty linen, a coal place, and, on the male side, urinals. The walls of all closets should be faced internally with glazed bricks, or lined with enamelled tiles. The floors should be of concrete, tiles, or some equally imperishable material not affected by wet. The doors of water-closets should be low and raised a foot or more from the floor, to allow of observation, and should open outwards. The closet apparatus should be of simple construction, without valve or anything to get out of order. The author preferred a hopper basin, straight down behind, with earthenware trap all in one piece, rather than a "wash-out" basin—a good quick-acting cistern with large service pipe, but not with automatic action. Next to the infirmaries should come either the ward for acute cases or for epileptics. In a small asylum the latter might be on the ground floor, with a ward for acute cases over; but, in any case, epileptics should, if possible, be housed both day and night on the ground floor. The day-rooms should be rectangular, without breaks or obstructions, behind which a patient might get lost sight of while in a fit. The adjuncts to the ward should be the same as in the infirmaries, but with only one bath in connection with the dormitory, for cases of emergency. The dormitory should be large enough to hold fully five-sixths of the patients in the ward, the remainder sleeping in single rooms, which, unlike other wards, should open out of the dormitory. The ward for acute

cases might be situated either on ground or first floor, if made sound-proof. This ward was best broken up by dividing the day-rooms into several smaller rooms by partitions partially glazed. The single rooms, accommodating one-third of the whole number of patients, should open out of the day-rooms. There should be one or more associated dormitories on the same floor for troublesome cases; the remaining patients sleeping on the top floor of the building. In other respects this ward need not differ from the infirmaries already described. The wards for quiet and working patients, or "chronic cases," might be very simple in design and arrangement. Staircases should be of ample width, and easy of ascent, and always of non-combustible material, for which purpose concrete was better than stone. Floors constructed on a fireproof principle offer many advantages, both against the spread of fire and the conduction of sound, and did not add so much to the cost of a building as was generally supposed. The administrative department should include kitchens and other offices, a general store, a recreation hall, also laundry buildings for the women, and workshops for the men. The chapel might be connected or detached; the superintendent's house was preferably detached. A separate block should be provided for nurses and attendants, not sleeping in the wards; an isolation hospital, mortuary, and other buildings were always necessary.

On Monday, the closing day of the Congress, the resolutions passed in the various sections were announced. They included motions in favour of hygiene instruction as an integral part of education; and also in support of special legislation for the control of block dwellings for the industrial classes in cities, of cremation as a rational and hygienic procedure, and in favour of an improvement of the conditions relative to the appointment of inspectors of nuisances.

The next Congress, to be held in 1894, will take place in Buda-Pesth.

THE SOCIETY OF ARCHITECTS IN BELGIUM.

THE annual excursion of the Society of Architects opened this year under exceptionally favourable circumstances. In itself the tour has a novel feature; it is being made in a European country, in a foreign land, and to the best of our belief no other English society has hitherto attempted such a feat, though excursions have been made to Italy unofficially by parties formed by the Architectural Association, and to the United States and various English colonies by other societies. But beyond this, the tour has commenced by a reception of the forty-one members and their friends who formed the party by the King of the Belgians at his palace at Ostend on Saturday afternoon. The audience had been appointed to take place at half-past five, but the boat was somewhat late, in spite of a fairly calm passage, and there was a great scramble to get the luggage through the Customs House and to a private dwelling, in which dressing-rooms had been provided, so that it was more than half an hour later, in spite of the strenuous efforts of Mr. Schembri, the conductor provided by Messrs. Gaze and Sons, before the members had donned their dress suits and were ready to march to the palace, which they did in "open order." Arriving, they were ushered through a long corridor and several ante-chambers to the presence of his Majesty, a fine, kingly-looking man, before whom they were ranged in a large semi-circle. The King shook hands with the President, Mr. W. H. Seth-Smith, who had advanced, and who then presented the following address, illuminated on vellum by one of the members of the society:—

To His Most Gracious Majesty, Leopold II., King of the Belgians.

May it please Your Majesty,—Upon this, the occasion of the first visit of the Society of Architects of London to Belgium, they desire to express to Your Majesty their sense of the great honour which you have conferred upon them by granting them an audience, recognising in that favour the fact that Your Majesty welcomes them as professionally interested in the ancient buildings of your country, buildiugs whose reputation for beauty is world-wide, and whose origin lies in the civic liberties and enterprise and in the religious devotion of your subjects. These monuments of taste and skill are particularly attractive to the modern English architect, who gladly acknowledges his indebtedness to them for many an inspiration. The Society also recognises in Your Majesty's gracious reception, and that of your people, a desire that the architects of Belgium and of England should be brought into closer and more friendly relations with each other for their mutual benefit, and that the buildings of each country should become better known to the architects of the other with a view to the erection in both countries of works of greater dignity and beauty. This, and other objects bearing upon the development of architecture, the Society of Architects was formed to promote, and its members will continue to support and forward them at all times to the best of their ability.

Signed on behalf of the Society,

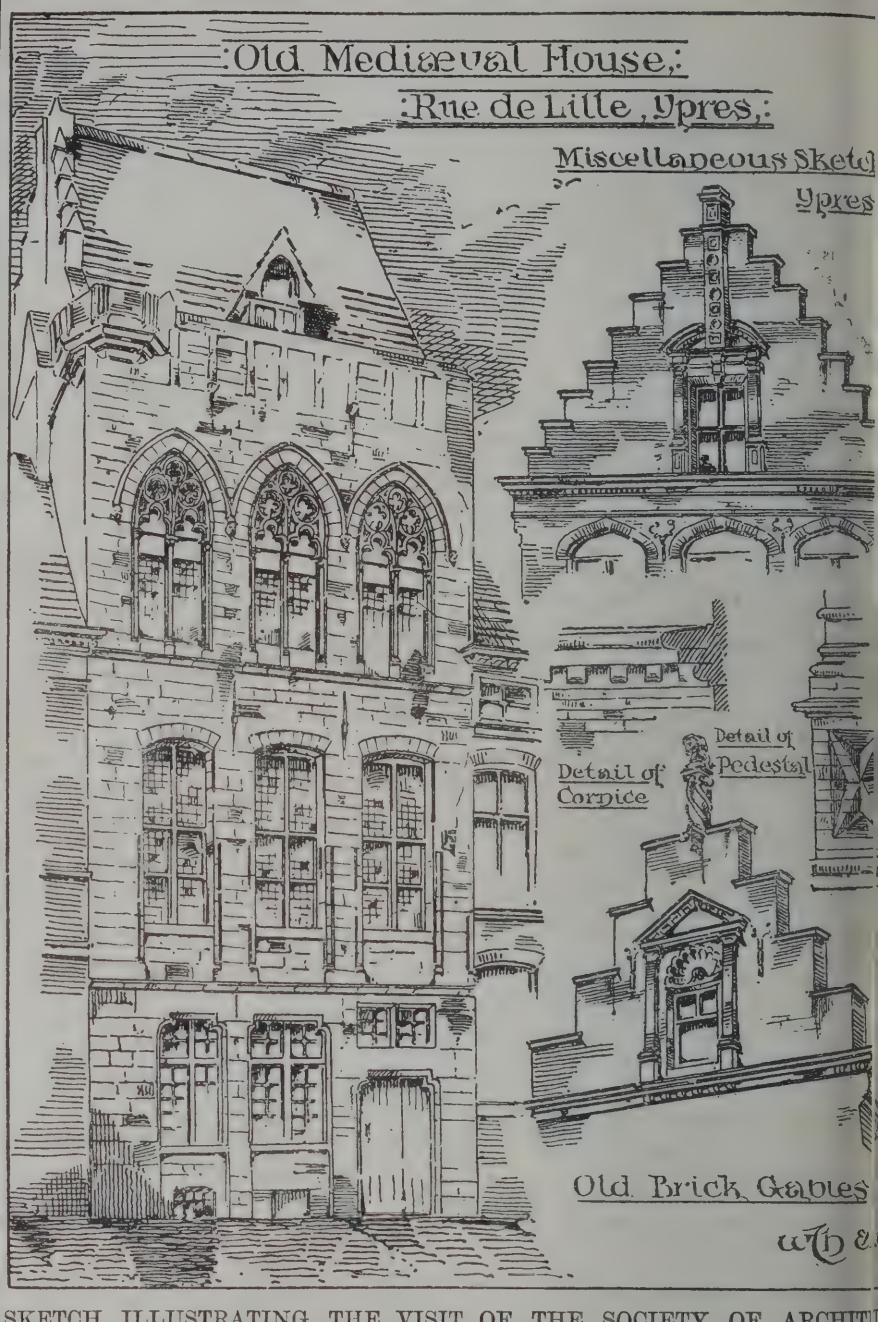
W. H. Seth-Smith, President.
Edgar Farman, Honorary Secretary.
G. A. T. Middleton, Secretary.

His Majesty acknowledged the address in English at considerable length, dwelling upon all its principal points. He compared the buildings of Belgium and of England with discrimination, giving the palm for old ecclesiastical edifices to our country, and then, after inquiring what places the Society intended to visit, pointed out the principal points of interest in each, and concluded by a few remarks upon the materials of his country, laying particular stress upon the fact that excellent building-stone is to be had. Then each member of the party was introduced to His Majesty in turn, and to each he made some remark upon the buildings of his locality, showing a close acquaintance with the local characteristics of the many parts of England which were represented. Before the audience terminated, the King pressed an invitation to the members to visit his unfinished palace at Laeken, and a time for the visit was named, which will slightly alt programme for Saturday (to-morrow).

After being dismissed, the party hurried Hôtel Couronne for dinner, which they cluded by drinking to the health of the and giving him three hearty English c Later in the evening, the journey was con to Bruges, and in that historical, old-worl Sunday was quietly spent.

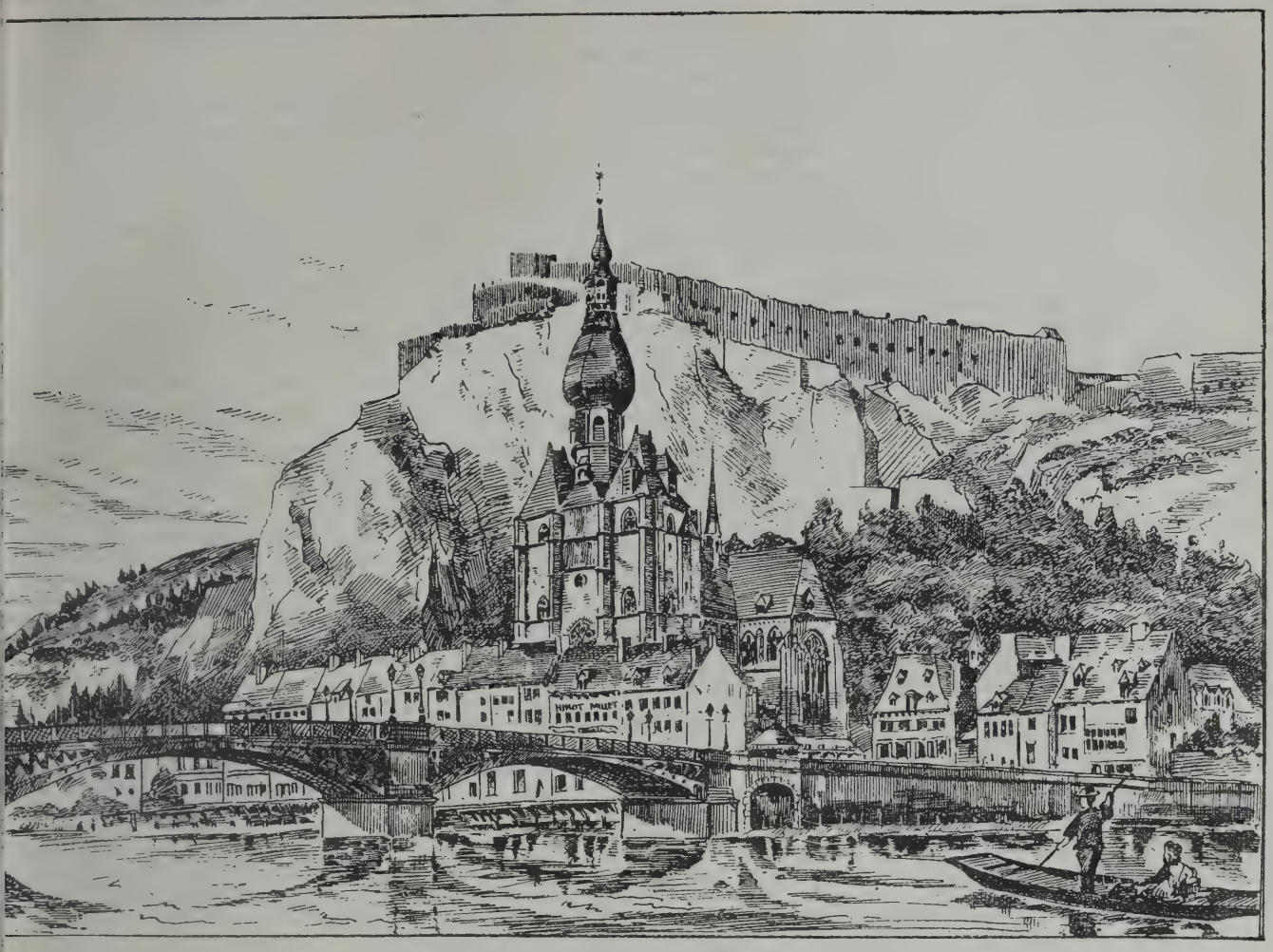
It was with the greatest possible regre the members parted, on Sunday afternoon Mr. Schembri, who had proved himself t most indefatigable conductor up to this especially as on Monday morning the business of the excursion began. Monday to be a heavy day, for during the rambles taken on Sunday so many individual m had seen so many specially fine things that impossible not to add several of them to th gramme; for Bruges is full of interesting most of it similar to the "Mont de Piété," we illustrate to-day, and which must by no be thought to be a singular example; it represents a class, to which the "fr Bruges," which we also illustrate, b as well.

The Carmelite Church received first att with its poor exterior and somewhat interior, its main point of interest bei somewhat Rococo Renaissance carving



SKETCH ILLUSTRATING THE VISIT OF THE SOCIETY OF ARCHIT TO BELGIUM.

(See also Lithographic Illustrations.)



·Dinant·sur·Meuse·Belgium·

sionals and the organ gallery. A cursory
was then bestowed upon the Normal School
rls, of which more presently, on the way
o the Hôtel de Ville, where the members
net by M. Saucerie, the city architect, a
of great ability, of considerable general
arian attainments, and especially well
l in the works of his own neighbourhood.
owed the party not only the exterior of the
de Ville, which is too well known to need
ption, but, which was much more appre-
, the old council chamber, now being
ed by him, and which was in such a con-
that, by scrambling over the scaffolding,
e details of the old construction, of the
vaulting of the lower chamber, the false
r pendent vaulting of the upper, supported
n rods, and of the handsome hidden timber
could be inspected. The thickness of the
sed in the guttering (about 12lb. or 14lb.
ot) created much surprise, and somehow
ucerie was led to state the average wages
workmen employed. Labourers, it seems,
e about 2d. per hour, and skilled carpenters
2½d. to 3d., and other mechanics in propor-
while they work for twelve hours every day
t full days each week.

was the gilded house, the "Maison de
en Greiffe," which next received attention,
ts quaint exterior in a kind of Spanish Re-
nce, rich with gilt and colour, harmonising
vith the surroundings, and with a wonder-
fine oak door within, bearing the date 1544,
ally that to the chapel of the Hôtel de
and subsequently belonging to the Cathe-
having panels of exquisite Renaissance
e in low relief. After it the much-vaunted
ey-piece of the Palais de Justice, next
seemed almost coarse in detail, fine as it
itably is, and of almost the same date, 1521.
e jury room adjoining, however, was found
x-case which well repaid examination, with
-designed carved frieze, and with ventila-
anel of interlacing ribbon-work, wrought
oak, dated 1646.

some accident the party here divided, some wandering away to see the lace in the Musée Gruuthuis—a nice old Flemish building, certainly, but scarcely worth the time devoted to it, where so much is excellent. When the party reassembled it was to ascend the belfry (Tour des Halles) to inspect the complicated machinery which controls the chimes, and to admire the view of the cathedral and the town, which could be thence obtained. The beautiful, yet simple, double doors of wrought iron in the muniment room received considerable and well-deserved attention.

On descending, a somewhat hurried visit was paid to the Chapelle de Sainte Sang, no time being allowed for sketching the exquisite Gothic foliage over the doorway—perhaps the finest specimen of Flamboyant foliage in Europe—for a second visit was to be paid to the Normal School. On the way a glance was bestowed upon the old houses in the Place Jean Van Eyck, but only a glance, for M. Saucerie, the architect of the schools, was waiting to conduct the party over them. A fine brick pile, arranged around an open quadrangle, in the ancient Flemish Domestic style, with which the author is so well acquainted, it was acknowledged by all to be a work of absolutely highest merit; and when it is remembered that its author is also the architect of the new post-office and municipal offices now in course of erection in the Grande Place, and of many another first-rate modern work in Bruges, it is impossible not to conclude that he is one of the best architects of his country.

After lunch, at which M. Saucerie was the guest of the president, a visit was paid to the cathedral, whose Canon acted as conductor, and made an excellent guide, though the general proportions of both exterior and interior, save the detail of the choir stalls, were the only points worth observation. The day concluded with an inspection of the Church of Notre Dame and its exquisite little baptistery (illustrated in this issue). A small specimen of Michael Angelo's sculpture over one of the altars there was disappointing on the whole, for though the general pose of the Virgin's figure is easy and graceful, the child Jesus is represented of the chubby angel sort with which the frequenters of Westminster Abbey are but too familiar. Thus a busy and enjoyable day concluded, and the members proceeded on their way to Ghent.

Tuesday, spent in Ghent, was scarcely so busy a day as the previous one had been. It was not that the buildings were less imposing or less picturesque, but there were fewer of them, most of the houses being modern and of an ordinary stuccoed type, so that the temptation which acted so powerfully at Bruges to stop and gaze and sketch at each street corner did not exist here. Almost the whole morning was devoted to the Cathedral, at the entrance to which Père de Balts, the bishop's secretary, and M. Van Assche, the architect for the restoration, the latter acting as an indefatigable guide throughout the day. The Cathedral, as it now stands, is almost an entirely modern building, the tower and the shell of the original edifice alone remaining, for it was destroyed by fire in the 16th century, and has only recently been rebuilt. The first thing which struck the party was the absence of the whitewash and colour which they had already learnt to expect, and then there grew upon them a sense of good proportion and good detail, particularly in the new triforium and clerestory. Slowly they noticed further that, as had been the case at Bruges, the perpends were not truly kept, while the joints of the masonry were clearly visible and roughly pointed, all at a little distance adding softness to the effect, a softness which we English architects generally lose from our insistence upon absolute precision. Soon another fault appeared, far less excusable, for the groin ribs were in many cases crippled, and the brick filling-in was badly done. At the same time other beauties of detail appeared, the actual body of the pulpit, in oak with white marble medallions, being very pleasing in effect, in spite of the curious combination of materials and the usual bizarre effect of the naturalesque treatment of the pedestal and canopy. A good deal of attention was given to a painting by

Van Eyck brothers, in which the perspective lines were shown converging to the sun, and to four brass candlesticks of Renaissance design, said to have been sold to Ghent by Oliver Cromwell, and to have formerly belonged to St. Paul's Cathedral—the older one, of course. Some members doubted whether Cromwell would not more likely have destroyed them; but they are undoubtedly of English origin, and anterior to the accession of the Stuarts, for they bear the Tudor rose in several places cleverly introduced into the foliage of the design, and also the English arms, with the three lions and the fleurs-de-lys, but minus the arms of Scotland. A visit to the crypt followed, and was well repaid, for it contains some capitals of exceptionally early date (10th century), with perfectly-formed volutes at the angles.

The hall of the Château of Gerard le Diable, with its simple pointed vaulting supported on two rows of columns with no neck moulding to the caps, said to belong to the 13th century, received a somewhat hurried visit, and on the way some new Renaissance schools were met with; but, though good, they are by no means to be compared with the Normal School at Bruges.

After lunch, at which M. Van Assche was present, the members followed him to the ruins of the Abbey of St. Bavon, most interesting from an antiquarian point of view, containing, as they do, relics of primitive Roman work in the walling, and much fine Early Romanesque detail, two apparently unique features being pointed out—a very Early Romanesque window in the form of a cross, and some caps with the water-lily worked upon them. The cloisters, chapter-house, and refectory remain in a sufficiently good state of preservation for their original character to be discernible, and some good encaustic tiles were seen, the whole of the ruins forming a most picturesque group.

Compared with its acknowledged excellence, but little time was devoted to the Hôtel de Ville, and many would have liked a longer period in which to study its rich Gothic detail as well as its two Renaissance façades, all evidently built with an eye to the possibility of street combats, and showing evident signs of such having taken place. After this, hurried glances only could be given to the other interesting buildings of such of the members as wished to see them all; but many sat down quietly here or there, and absorbed and sketched some special detail. Thus the bold front of the Church of St. Nicholas was treated, while some had seen the elegant modern interior of St. Michael earlier in the day; but those who still followed M. Van Assche were led to the ancient double Château of the Courts of Flanders, corresponding well to our Norman keeps, but in two stories, complete castle over complete castle, now in ruins, and being opened up previous to restoration. After that a little-known open-timber roof of the 12th century was seen, belonging to the old hall of the Butchers' Guild—the Boucherie, in perfect preservation now, a heavy, solid open roof. Thence a few steps brought the reduced party to the exquisite and well-known Maison des Bateliers, which we illustrate to-day, but of which no illustration can give the effect of the rich detail and the now decaying stone, even if it shows its two near neighbours and great contrasts, a Romanesque and a Renaissance building, erected for almost precisely similar purposes to this. It was with great regret that the members assembled early at the station to proceed to Antwerp, and said farewell to their gulde and companion for the day, M. Van Assche.

THE LONDON CARPENTERS' STRIKE.

THERE is still no prospect of an immediate settlement of this dispute, which has now reached its fifteenth week. In accordance with a resolution passed at a shop and job delegates' meeting held on Thursday night in last week, the men in thirty more firms were drawn out on Saturday, adding nearly 500 men to those on the United Trades Committee's pay sheets. Of these thirty fresh firms struck, seven, Messrs. Britten, Papin, Stapleton, Summers, Taylor and Co., Whitty, and Winn, have conceded the men's demands. The present state of affairs is that the men have been drawn out or locked out of 265 firms, of which number just 50 have given in to the 47-hours week, and 10d. an hour wage. More than 1,500 men have returned to work, and a large number have left the Metropolis for other towns. A special meeting of the London district of the General Union was held on Tuesday evening at the Old Friends' Hall, St. Martin's-lane, Mr. Barker Sinclair in the chair. It was resolved, after a discussion, on the motion of Mr. C. Matkin, seconded by Mr. Propert, that it was desirable that a compulsory levy of 2s. per member per week should be made on members of the General Union during the continuance of the strike. It was decided to send Mr. C. Matkin as a delegate to the Trades Congress at Newcastle-on-Tyne, and it was further decided to take steps to hold a meeting to discuss the eight-hours movement, with special reference to the present strike.

At the London County Sessions on Monday, Thomas Young pleaded guilty to "following" in connection with the Carpenters' strike, and Richard Arscott, who was convicted on Saturday of "besetting" under similar circumstances, surrendered. In both cases Mr. Bridgman, builder, of Brownlow-mews, Guildford-street, was the prosecutor. Sir P. H. Edlin, addressing the two defendants, denounced their persistent terrorism, said he should postpone sentence for seven days, and bound them over to come up again next Monday. James M'Leary, who had been found guilty of intimidating, besetting, and violence, in the same dispute, was then sentenced to six weeks' hard labour. In consequence of the judgment given in these cases, the members of the London United Trades Committee have decided that they will picket Mr. Bridgman's shop themselves, and not ask others to do it. At the Surrey Sessions last week, Sir Peter Edlin sentenced another carpenter, Alfred Arslon, to five weeks' imprisonment for intimidating one of the new hands employed at Messrs. Patman and Fotheringham's.

EFFECTS OF PICKLING IRON.

THE effect of pickling and rusting on the strength of iron has been shown by A. Ledebur, of Berlin. Rails, joists, and bars were subjected to various conditions—I. In the condition as delivered; II. after exposure for purpose of rusting; III. zincked (galvanised) and tested at once; IV. galvanised and exposed for a time; V. pickled in acid and immediately tested; VI. pickled and kept for a time in a dry place. The pickling was done with sulphuric acid diluted with water in the proportion of 1 : 100. The samples were tested for transverse, tensile, and compressive strains, and under a falling weight, these experiments being made on the same sample for each of the six conditions. The bending tests with wrought-iron joists showed substantially the same for all the conditions, the maximum loads carried showed differences, being highest in the natural condition and lowest when freshly pickled. Rusting also produces a diminution of strength more apparent in the galvanised than in those not galvanised. In the instances where the specimens were broken, the diminution in strength is said to be very decided in the pickled and perceptible in the rusted specimens. The figures are: breaking strain under I. condition, 35 tons; under II. condition, 33·9 tons; under IV. condition, 32·7 tons; under V. condition, 29·6 tons; under VI. condition, 30 tons. The steel specimens showed results which follow the same law.

Mr. John Bottrill, head of the firm of Messrs. Bottrill and Son, builders, Reading, recently entertained some 200 of the workmen in the employ of the firm, and about 30 guests, to a dinner in the old town-hall, in celebration of the marriage of his son, Mr. J. T. Bottrill, with Miss Strange, of Clapham.

Mr. John Willet, civil engineer, died on Saturday morning at his residence in Aberdeen, in his seventy-sixth year. In 1837 he was apprenticed to Mr. James Thomson, C.E., Glasgow, and afterwards became an assistant to Mr. Andrew Thomson. Mr. Willet was subsequently engaged on many Scottish railways, including the Glasgow and Garnkirk, and Pollock and Govan lines. In 1843 he went to Liverpool as an assistant to Messrs. Locke and Errington. During the period he remained there he took a large share in the projection or construction of railways in different parts of the kingdom. In 1849 he became resident engineer on the Aberdeen Railway, which was afterwards amalgamated with the Scottish North-Eastern, subsequently undertaking various works on the Caledonian system.

Engineering Notes.

Leamington.—The opening of the Adelaide-road bridge, built by the Corpor took place on Thursday, the 13th inst. Th bridge, which is constructed of wrought ir built upon the old abutments. These had s down slightly beneath the weight of th bridge, which was some 1,400 tons. The tion of wrought iron has enabled the bo surveyor and engineer (Mr. W. de Norman from whose plans the structure was erect reduce the weight to 250 tons, and to flattened arch, so that the roadway at the is now 4ft. lower than it used to be. The consists of seven wrought-iron ribs, brac gether by double angle-irons in the span and pivoted in the crown and the springin object of this pivoting being that, if th any further settlement in the abutments, th arches may adapt themselves to it witho injurious strains being set up. Above the form of $\frac{3}{8}$in. wrought-iron plates an even s is formed of cement-concrete, and on this the usual macadam roadway. The span bridge is 70ft. The handrailing is of cast Messrs. Jenkins and Son, of Leamington, the contractors for the demolition of th bridge and the alterations to the abutment Mr. Alfred Thorne, of London, was the tractor for the ironwork. The outlay has nearly £2,000.

The Ribble Navigation.—The Ribble N tion Committee's report, issued on Tuesday that the central channel possesses the advantage of being the most direct course Preston to the sea. The rateable val Preston is about £340,000, and the max rate for the Ribble undertaking when the bo ing powers are exhausted will be 2s. 8d. River Ribble Commissioners recommend th tension of the training walls to five miles Lytham, with an additional expenditure f fixed channel to the fourteenth milesto £220,000, or with the equipment of the P dock £281,000.

COMPETITIONS.

Coxlodge Lunatic Asylum.—The Newc on-Tyne Visiting Justices, who manag asylum at Coxlodge, near that city, s Wednesday, and formulated a scheme fo extension of accommodation at that plac new asylum is to be built on the side Gosforth, and will be set apart for male in only. The present premises will be utilis females. The new asylum will accomm between 350 and 400 inmates. The L Commissioners having spoken very high the Nottingham Asylum, a deputatio the Newcastle justices visited the town that institution will form the model by whi justices will be guided in the building oper at Coxlodge. Only architects having pla business in Newcastle can compete. The ju intend to offer premiums for the 2nd, 3r also for the 4th designs, the first comp being only remunerated by the usual comm Mr. G. T. Hine, of Nottingham, the archi the Nottingham Asylum, has been asked as assessor. The cost of the new building from £60,000 to £70,000, exclusive of site.

CHIPS.

Mr. Edward Goodwyn Lewis, a Manc artist of some repute, died last week at Bo mouth in his 65th year. In earlier years h well known as a successful portrait painter, crayons, and at times in oil; but more recen has executed large Scriptural subjects, which exhibited in London and the provinces, and wards engraved.

A new school-chapel, the foundation-st which was laid in November last, was ope Prestwich, Lancs., on Sunday. It is a plain ing, erected at a cost of about £2,000.

At Kelsale, East Suffolk, on the 13th ins parish church was reopened on the comple restoration, which has been in progress in se since 1878, and a new parish room built brick at a cost of £1,300 was opened.

The premises of Messrs. J. Wilson and timber merchants, Bradford, were almost pletely destroyed by fire on Friday. The d is estimated at £20,000.

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ILLUSTRATIONS.

GNS FOR THE NEW SOUTH KENSINGTON MUSEUM BUILD-
GS BY MR. T. E. COLLCUTT AND MESSRS. J. BELCHER
D SON.—SKETCHES IN BELGIUM ILLUSTRATING THE
SIT OF THE SOCIETY OF ARCHITECTS TO BELGIUM.—
CHITECTURAL ASSOCIATION EXCURSION SKETCHES IN
ROPSHIRE.—CONVALESCENT HOME, ST. LEONARD'S-ON-
A.

Our Illustrations.

SOUTH KENSINGTON MUSEUM COMPETITION.

e continue our series of illustrations of this
at competition, which we commenced a fort-
ht since, by giving to-day the exteriors, with
ns, of Mr. T. E. Collcutt's design, and that
mitted by Mr. John Belcher. We shall
tinue the series further next week.

TCHES FROM BELGIUM, ILLUSTRATIVE OF PLACES VISITED BY THE SOCIETY OF ARCHITECTS.

e Society of Architects is this year taking a
e field for its outing, and its members are
ting the ancient cities and towns of Belgium.
o publish to-day a series of architectural
tches from that kingdom in illustration of
buildings seen on the occasion, giving some
racteristic bits from Antwerp, Malines,
ges, and other places, with one or two
lies of old church furniture. The sketches
tributed by Mr. W. H. Thorp, F.R.I.B.A.,
also published in his "Architect's Sketch-
k at Home and Abroad." The illustrations
l fully explain themselves, with the figured
ensions and accompanying particulars printed
h them. Mr. E. Guy Dawber's study of an
confessional at Bruges is specially interest-
. We report the visit elsewhere, which so
has been a most successful one. The Insti-
e of Architects of Belgium has cordially co-
rated, a Royal audience has been accorded to
English visitors, and the Society of Archi-
ts may congratulate itself on the hospitality
l favour with which its members have been
eived as representing one of the leading
glish professional bodies.

TCHES OF UPTON AND NONUPTON COURT-HOUSES, HROPSHIRE, AND OTHER EXAMPLES IN THE EIGHBOURHOOD.

e lithographic illustrations to-day given with
conclusion of our report of the proceedings of
Architectural Association Excursion printed
page 271, furnish views of Upton Court and
nupton Court, two of the most delightful old
ises to be seen in the county, both for colour
l quaint design. Upton Court is not far in a
therly direction from Ludlow, near the
er Teme, in a charmingly pretty country
ards the borders of Herefordshire. It was the
t of the Karvers, and still retains its old glass
l wainscot panelling. Nonupton Court,
v a farmhouse, is a near neighbour on the
er side of the valley. In the centre is a
tty timber porch with Jacobean, almost
tch, brick-built wings and tall chimneys.
h houses, though comparatively unimportant,
certainly eminently suggestive, far more so
than large palatial mansions possibly can be to ordinary architects.

CONVALESCENT HOME, ST. LEONARD'S-ON-SEA.

This building has recently been erected for the Trustees of the Chelsea Hospital for Women. It is situated on the top of the cliff at West Marina, St. Leonard's-on-Sea. The plans given illustrate the general arrangement of the two principal floors. The building is faced with red bricks, Bath stone dressings, and tile hanging, and the roof is covered with brindled Broseley tiles. Mr. Frank H. Humphreys, A.R.I.B.A., of Hastings, was the architect, and the work has been carried out by Messrs. Eldridge and Cruttenden, of St. Leonard's-on-Sea. The cost, exclusive of site and boundary walls, was £3,500. The building was opened on June 3rd by the Countess Cadogan.

CHIPS.

The restoration of the parish church of Hipswell, Yorks, was commenced on Monday. Mr. Harwood, of Manfield, is the contractor.

A stained-glass memorial window has been inserted in the chancel of the Collegiate Church at Stratford-on-Avon in memory of the late Mr. J. O. Halliwell Phillips, the Shakespearian scholar. The subject is that of Elijah's sacrifice on Mount Carmel. The window is situated immediately at the back of Shakespeare's monument, and within a few feet of the poet's grave.

A new mission-room and Sunday-school at Little Bytham, near Peterborough, designed by Mr. R. M. Parkinson, the resident engineer for the Midland Railway Co., and built under the superintendence of Mr. Hayes by Mr. Hammond, builder, of Peterborough, was opened recently.

Miss E. C. I. Abbott, who was the only lady in the 1st Class Natural Science Tripos at Cambridge this year, is the eldest daughter of John O. Abbott, A.R.I.B.A., 31, Charing Cross, W.C.

The models in the competition for the monument of the Emperor William the First are being erected in the Arsenal at Berlin. They will not be exhibited until after the Emperor has arrived there from Kiel, and has himself first inspected them.

With the permission of the trustees of Shakespeare's Birthplace, Mr. C. Bazley, a London architect, has been taking during this week detailed measurements of and about Shakespeare's house for Messrs. Ingram, proprietors of the *Illustrated London News*, who propose to erect an exact facsimile of the building at the Chicago Exhibition.

The Public Works Loan Commissioners, in their report, state that during the financial year 1890-91 they made 481 advances for sums amounting together to £990,068, as against 458 advances for £856,742 in the previous year; an increase of advances in number of 23, and in amount of £133,326.

The Company of Armourers and Braziers will hold, in London, their third exhibition in May, 1892. The exhibits will mainly consist of objects executed in metal from original designs. Particulars as to the prizes offered and conditions of exhibition will shortly be obtainable from the clerk to the Company, 81, Coleman-street, London, E.C.

A series of seven stained-glass windows are being placed in the Jesse Haworth Memorial Church at Walsden, near Bury, Lancs., as memorials of members of the Haworth family.

A selection of 50 representative water-colour drawings by various artists has been presented to South Kensington Museum by the daughters of the late Sir Prescott Hewett. The collection includes one of Sir Prescott's own drawings.

On Wednesday week, the foundation-stones of a new Wesleyan Chapel in Tamworth-street, Lichfield, were laid. The chapel is being erected from the designs of Mr. Thomas Guest, Birmingham, and is to be in the Perpendicular style, with alterations to the old building, which is to be utilised as a school hereafter. The expenditure involved is about £2,000. The contractor is Mr. Williams, of Tamworth.

The new schools which have been erected by the Rowley Regis School Board at Macefields, Old Hill, were opened on Monday. The total cost of the buildings, exclusive of the site, is £3,500, and accommodation is provided for 460 boys. The schools are built upon the principle of grouping all the class-rooms round the central hall, so as to give every class-room a side light to the desks. They are built of red bricks and terracotta, with Broseley tiles on the roof. All the floors are laid with solid oak blocks, excepting the porches, which are of asphalte. Mr. W. Willetts, contractor, of Old Hill, was the builder, and Mr. J. T. Meredith, of Kidderminster, the architect.

ARCHITECTURAL & ARCHÆOLOGICAL SOCIETIES.

British Archæological Association.—The 48th annual congress of this body is being held this week at York. The proceedings of the congress began on Monday, when a welcome was extended to the members of the association on behalf of the city in the Guildhall. The Marquis of Ripon, the president for the year, in responding, remarked that to studies like archæology was greatly due their better understanding of the past. If there was any distinction more than another between the present day and the 18th century, it was to be found in the greater and juster understanding of past times, and especially of the middle ages. If there ever was a country in which archæological studies might well be zealously pursued, that country was our own, because it was the singular fortune of England that her people had had no violent severance of their history. Votes of thanks were passed, and subsequently visits were paid to the King's Manor and the Minster. In the evening the members were invited to a *conversazione*. On Tuesday visits were paid in the morning to the ruins of St. Mary's Abbey and the Museum of the Yorkshire Philosophical Society, which occupies a portion of the grounds attached to the Abbey. In the afternoon the Castle and several of the city churches were inspected. On Wednesday, the members visited Knaresborough Castle and Church, the "Devil's Arrows" at Boroughbridge, and the Church and Roman Pavements at Aldborough.

Royal Archæological Institute.—In completion of our report of the Congress at Edinburgh, from our last issue, p. 240, it may be mentioned that the annual meeting was held on Thursday, after which the Bishop of Carlisle opened the Architectural Section with an address. On Friday the members visited St. Andrews and were conducted through the University, the ruins of the cathedral, the castle, and other places of interest. On Saturday a visit was paid to Glasgow, where Mr. John Honeyman, architect, acted as guide over the Cathedral, and the Wall of Antoninus was inspected in the section between Cury and Dellatur, Mr. W. Jolly being the leader. On Monday Mr. Thomas Ross, of Edinburgh, conducted a large party over Rosslyn Chapel, Borthwick Castle and Church, and Crichton Castle and Church. In the evening the concluding meeting was held in the National Scottish Portrait Gallery.

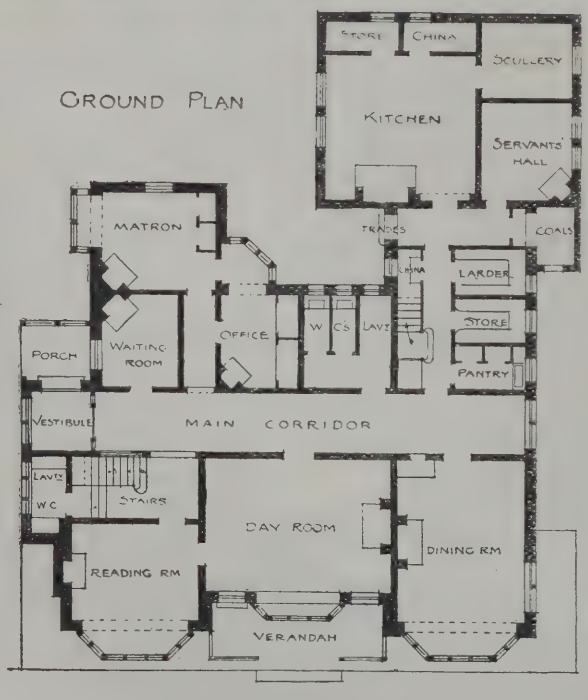
York Architectural Association.—On Saturday afternoon the members of this association visited Driffield, the object being to inspect some of the restored ancient churches in the neighbourhood. The party first viewed the church at the village of Kirkburn, restored several years ago. The Transitional Early English church of Garton-on-the-Wolds, decorated by Sir Tatton Sykes, was also visited. St. Peter's, at Little Driffield, which has recently been restored under the superintendence of Mr. Temple-Moore, of London, was next seen. During the restoration many interesting discoveries were made, notably the capitals and bases of pillars show that at one time a church stood here having both north and south aisles. These were found in lowering the floor to the depth of about 4ft. On leaving Little Driffield, the splendid Perpendicular tower of All Saints, Driffield, soon came into view, and was at once pronounced to be a fine specimen of this style of architecture, the beauty of its proportion being almost unique among the towers of parish churches, as it resembles the towers of the Cathedral of York and the Minster of Beverley.

The Hyde Park recreation club in Ashgrove, Headingley, was opened by the Mayor of Leeds on Friday. The club has cost £3,000, and has been built from designs by Mr. W. A. Hobson, Albion-street, Leeds. The principal apartment is the assembly room on the first floor, which measures 55ft. by 24ft. 6in. The contractor for brick and stone work was Mr. W. Evans, of Leeds, and the contracts for carpenters' and joiners' work were taken by Messrs. J. Ledgard and Son, of Leeds.

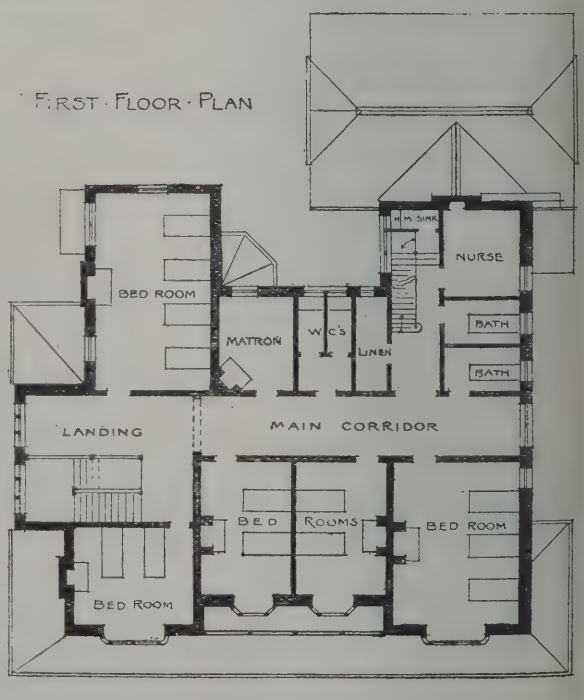
A stained-glass window was last week placed in one of the north lancet lights of the nave of Clymping Church, by Mr. Henry Bransbury, of Southsea, in memory of his parents, brothers, and sisters, who lie in the churchyard adjoining. It is a representation of the "Good Shepherd," manufactured by Messrs. Holt, Warwick, and put in by Mr. James Gibbs, of Littlehampton.



GROUND PLAN



FIRST FLOOR PLAN

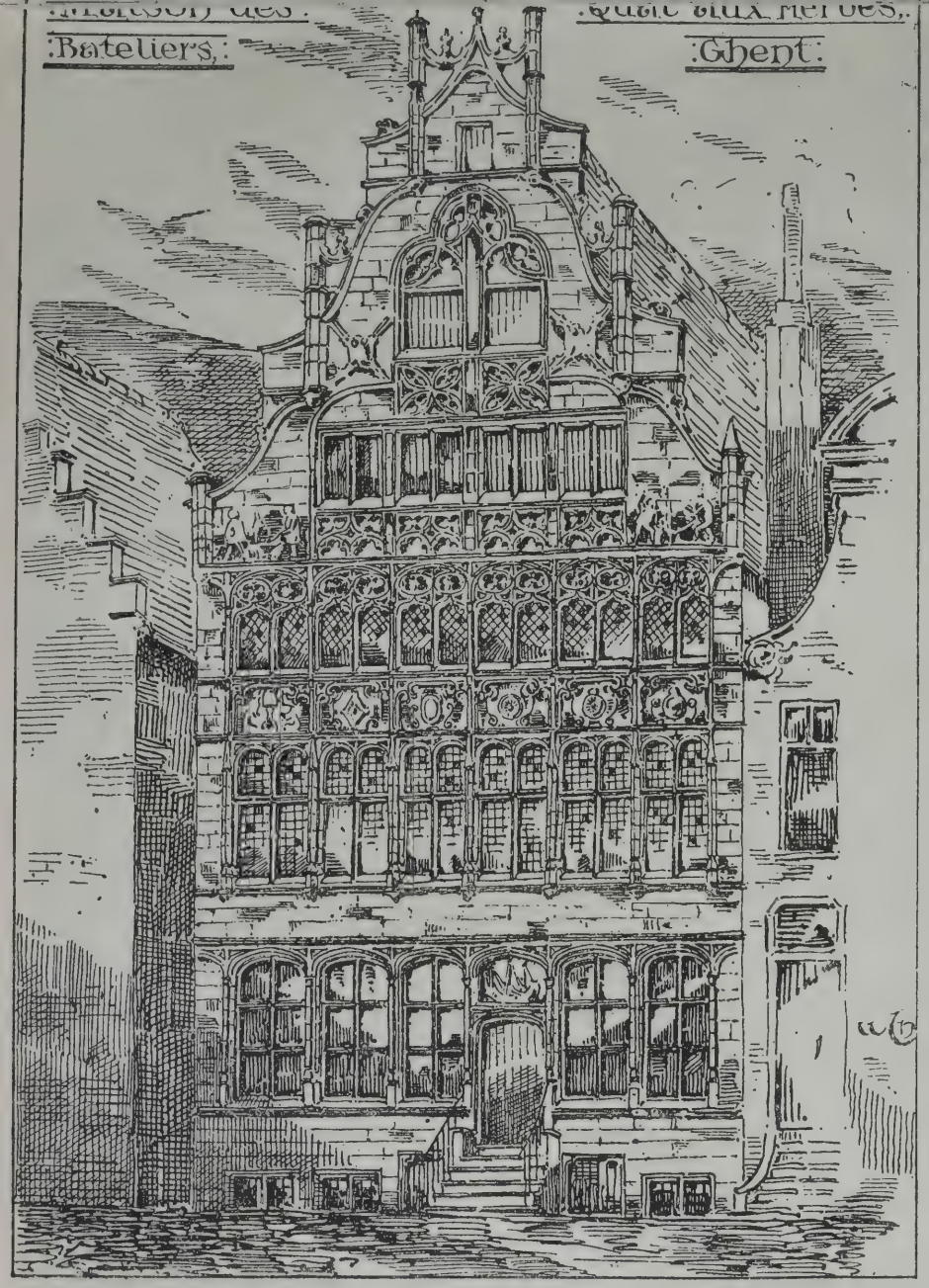


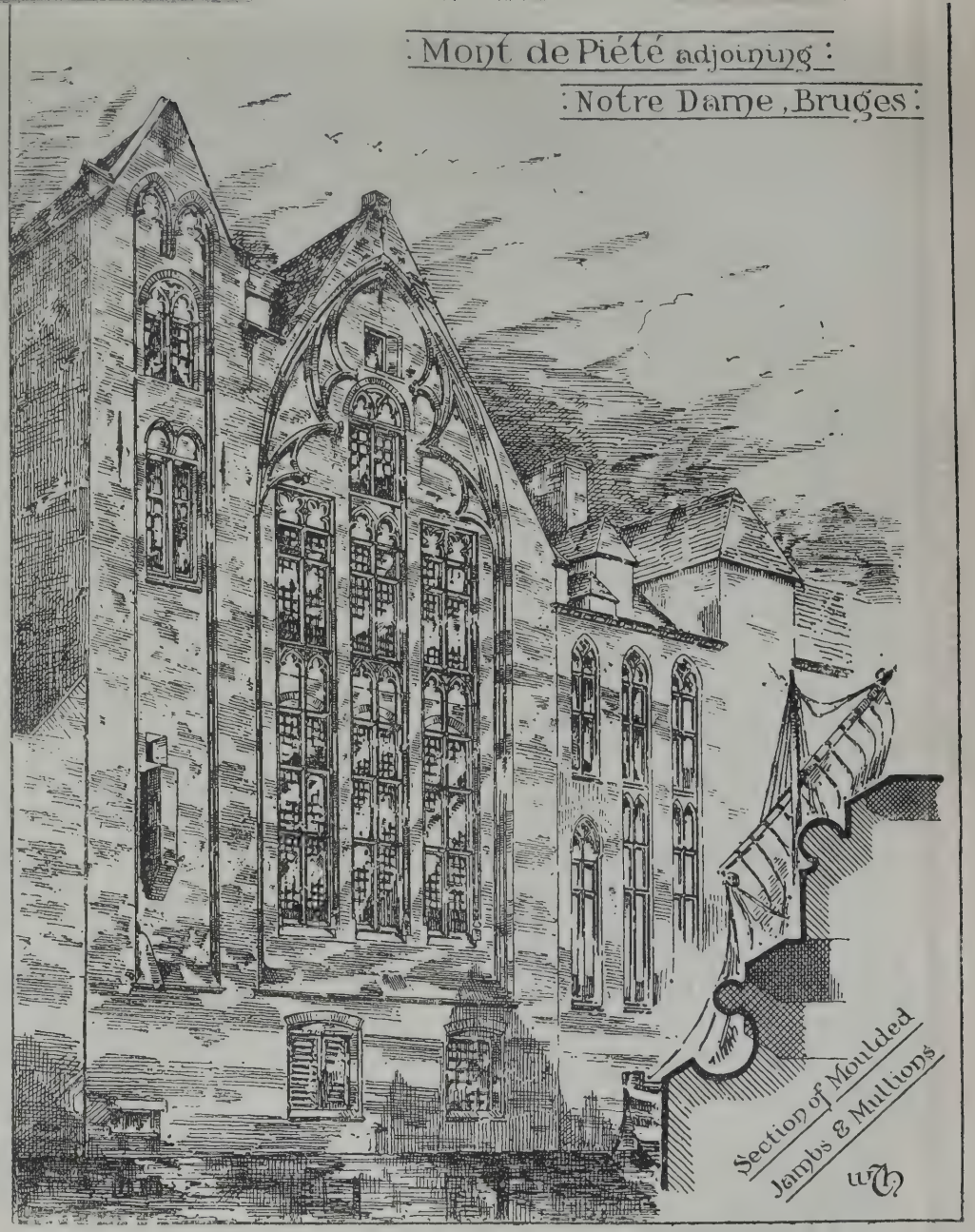
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CONVALESCENT HOME ST. LEONARDS-ON-SEA

FRANK H. HUMPHREYS · ARCHT. - HASTINGS

DELLACASA





SKETCHES ILLUSTRATING THE VISIT OF THE SOCIETY OF ARCHITECTS TO BELGIUM.

(See also Lithographic Illustrations.)

WAYSIDE NOTES.

THIS is pre-eminently the season for archæological wanderings, and, if we may include holiday-making architects, the sum-total of persons engaged in inspecting old buildings must amount to something rather considerable. Like to other sciences, however, is that of archæology. New discoveries are mostly made in a more or less chance way. Accordingly we find that large numbers of specialists roaming about the country never alight upon anything novel; but that Roman villas and bath remains, such as the new finds at Lincoln and in Hampshire, are the result of what is called "chance." Of course, the Oldbuck, the architect, and the student do not go a-grubbing with pick and shovel like the excavator and navvy, and, therefore, cannot be expected to unearth classical or any other remains; but reading the reports of the doings of this and that archæological society and the excursions of architectural bodies, it did just occur to me to contrast all this apparent wealth of systematic researches with the chance nature of actual discoveries.

The Royal Archæological Institue of Great Britain and Ireland has apparently had a good time over the Border, in spite of the taste of the "Scotch mist" that the members of the Institute's excursion party had on Monday last. The session of the Institute was brought to a close with a meeting in the National Portrait Gallery at Edinburgh. According to a statement of the chairman of this meeting, the national monuments, churches, towers, &c., are well cared for in Scotland. Only one little matter called for criticism, and here the R.A.I. descended to that consideration of trifles which seems to be unavoidably an attribute of archæological societies of all grades, royal and otherwise. A "great quantity of vegetation" has been permitted to grow on the roof of Borthwick Castle, "doing great injury to the interesting ruin." I dare say this veritable market-garden on the roof of the castle doesn't do a great deal of injury, and doubtless aids the picturesque; but it apparently caused animated discussion at the Institute's meeting, and the adoption of a motion that steps be taken to have the "vegetation" removed!

The British Archæological Association is holding its forty-eighth Congress at York, and is having a busy time in exploring the manifold remains of that venerable city, what with the Minster, churches, abbeys, museums, and the Castle. The president for the year is the Marquess of Ripon, who at the opening of the congress delivered an inaugural address by no means void of interest. It is indeed true that "to studies like archæology is greatly due our better understanding of the past," and that "any science which enables men to appreciate what has gone before them, and out of which their own times have come, must have a very valuable teaching, not only for men of science, but for public men, politicians, and statesmen." History, studied conjointly with architecture or archæology, is infinitely more useful and interesting than when studied by itself. Someone has called architecture "frozen music." Archæology, perhaps, is, in a sense, *frozen history*. Ancient buildings are certainly "history in stone," as an old friend of mine used frequently to say.

It is taking a wonderfully long time to turn Norwich Castle into a museum. Years ago the idea of utilising the Keep and the prison buildings for museum purposes was definitely decided. That was some time before I last visited the town, one Easter, two years ago. At that time I remember there were about "two men and a boy" at work in the Keep, among such a maze of loosened masonry, dry rubbish, &c., as made me think that these worthy Norwich workers would labour till Doomsday, and not get things in order. I judge, however, from a letter by Lord Walsingham in Monday's *Times*, that matters have progressed, and that now donors and benefactors are wanted to fit up the various buildings round the Keep as museum galleries. In Lord Walsingham's letter it is stated that anyone who contributes £1,000—which will be about sufficient to complete and fit up one of the subsidiary buildings as a museum—will have the honour of having his name associated with the building, and a hope is expressed that any Norwich citizens or any East-Anglians, for the matter of that, who may have gone across the high seas and made their goodly piles, will thus contribute to the cost of founding the museum—a hope I sincerely re-echo as an ardent admirer of Norwich and its inhabitants.

I am glad to hear that the rumour that old Burghley House, the Elizabethan mansion of the Marquis of Exeter, with extensive surrounding estates, would be shortly offered for sale, is unfounded. Lord Tennyson's "Burghley House by Stamford Town" may be familiar to readers. Built by Queen Elizabeth's Lord Treasurer, a commencement with the works was made in 1575, and when complete the "Virgin Queen" herself visited the Lord Treasurer. Our own Queen has also visited the old mansion, which has great historic interest, and is certainly not a fit subject for the hammer of the auctioneer, although of late years the "going, going, gone!" of the salesman has sounded harsh and grating in many an old historic room and hall hallowed by a long train of memories of the past.

Taffy is still a Welshman—I won't say a thief; but the children of the Cymri who compose the Caerleon Highway Board evidently have no disinclination to steal brains when they get the opportunity. Here's a chance for district surveyors! One of these lucky sons of Cœsus on the 3rd of September will become

"DISTRICT SURVEYOR for the said Highways, comprising the Parishes of Llandegveth, Llangattock, Llangibby, Llanvrechva Lower, Llanthewy Vach, Llanhennock, and Tredunnock. The person appointed will be required to have a thoroughly practical knowledge of the work, such as preparing and examining plans, specifications, and estimates of costs of Works, making and repairing of Roads, Bridges, management of refuse disposal, scavenging, &c. He will also be required to undertake the supervision of labour, payment of wages, and keeping books and accounts connected with the office of Surveyor, and to perform all duties required in respect of such office under the Highway Act and the Orders of the Local Government Board. Salary, £52 per annum."

He will probably make his living—as all such miserably-paid officials must—out of illicit commissions; but that probably will not trouble the sapient Highwaymen of Cærleon so long as they can point with honest pride to their pound-a-week D. S.?

If the Society of Architects are not having a good time in Belgium it will not be the fault of arrangements, nor the want of a well-considered programme. They have a most interesting field to explore—no better could be found for those who have never been to Belgium; they have been accorded the audience of a king, and, on the whole, the weather has not been at all bad. One and all should return to England, and work happier, more informed, and richer in architectural ideas than when they set out for the Low Countries. I know of no district in Europe that has supplied a larger store of useful information to the architect than Belgium, and if we include Holland, we have a tract of country that has been a storehouse whence ideas have been drawn for at least one-fourth of the architectural designing of the past eight or nine years. Before the era of terracotta, which is *fin de siècle* architecture indeed, bricks and brickwork were the rage; and where so instructive a country for examples of beautiful and architectural brickwork as the "Pays Bas"? Terracotta is daily becoming more used for urban elevations than the once ubiquitous red-brick; but the lessons of what may be called the "Brick Revival" are too deep and sincere to be dropped entirely, so that brick architecture will be always practised, and the countries of brick architecture be always revered and gratefully esteemed by the architect.

I fear that you get, at this time of the year, rather a surfeit of archæological matter in your columns, not from the point of view of the reader, however, who, curiously enough, at a season when he may himself have been "archæologising," finds archæology and accounts of touring architects a palatable item in the weekly bill-of-fare. Your account of the excursion of the Architectural Association must prove interesting reading to all, as will also the doings of the Society in Belgium. The architecture of Shropshire lacks nothing in interest when compared with that of other counties. Those unacquainted with the district traversed by the A.A. excursionists may think that it does; but the account and illustrations given complet abuse our minds.

When holiday-makers return they work ready for them in the competi There is now quite a batch of competi hand. Of the most recent ones, that Wavertree Local Board may be dismis the mind of the architectural competitor, to the care of decorative specialists. police offices for Shrewsbury afford an opp to those acquainted with the peculiar ex of buildings of this nature. The particul forth in the advertisement are perhaps they might be; intending competitors sh deavour to have an assessor appointed, at once. These matters can always be torily arranged, if taken up in good time when delayed till the drawings are sent usual heartburnings and other attendant of the unsatisfactory, assessorless con come to pass. It only needs a few arch write to the inaugurators, when, if thes men mean well, they will generally agre appointment of a referee.

The Bath Competition promises wel premiums are substantial, and a wel architect has been appointed assessor. ought to be some possibility of forecas probable style of the building. *Bath-st* of course, be employed, and I have a no the views of many of the competitors as will, for sufficient reasons, be tinged wit of the Palladian. Thus, I should say probable style of the proposed new b buildings at Bath will be represented formula:—$\frac{\text{Bathstone}^2 + \text{Palladio}^3}{\text{Modern ideas}}$. T not convey any very lucid notion to read it does to myself, and as I fancy I mu of only about half-a-dozen architects not making at the present time, it perhaps matter. Anyhow, intending competit have the solution of the formula on appl accompanied by a fee of two guineas, re of course, on receipt of a *bonâ fide* desig —to the Ancient

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CHIPS.

The Works Committee of Aberdeen Board have adopted a plan by the harbour showing an extension of the existing fish the graving dock, a distance of nearly 5 cost of £3,400.

The work of reroofing the chancel of M Cathedral, under the direction of the architect, Mr. J. S. Crowther, is now show siderable progress. Four bays out of s chancel have already been covered in.

Memorial-stones of a new Wesleyan Ch laid at Denaby Main on Monday. The ch cost about £1,500, and to accommodate 50 Mr. Arnold, of Doncaster, is the builder.

The foundation-stone of the new buildings at Sheffield (which, including cost altogether about £150,000) is to be l Mayor (Ald. Clegg) on the 23rd prox. M Mountford, F.R.I.B.A., of London, who was accepted in competition, and has b trated in our pages, is the architect.

A reredos of carved oak is being mad parish church of Madron, near Penzanc Harry Hems, of Exeter.

New banking premises are about to Keighley, for a Bradford firm of bank plans by Messrs. W. and J. B. Bailey, of and Keighley.

Memorial-stones of new Sunday-sch nected with the Anfield Wesleyan Cha field-road, Liverpool, were laid on Col. C. O. Ellison, M.S.A., of Liverpo architect of the buildings, which will cost

At the last meeting of the Town Counci gow, Bailie McLennan announced that th the new municipal buildings, erected William Young's designs, had been co lower than the estimates. He was not, ho a position to state the exact amounts.

Mr. F. G. Saunders, presiding at the h meeting of the Great Western Railway C incidentally referred to the subject of iro over railway lines. He said that Br original engineer of the Great Western, ferred wrought to cast iron, and the com departed from that system in very fe Wrought iron would now be employe instances.

HITECTURAL ASSOCIATION EXCURSION IN SHROPSHIRE.—No. III.

WITH LITHOGRAPHIC ILLUSTRATION.

NTINUING our itinerary with this Society during last week's excursion to buildings terests in the neighbourhood of Shrewsbury, have arrived, after a charming drive on nesday morning, and a short walk over the , at the quaint old farmhouse known as *ght Hussey Manor*, the home for genera- of the Husseys and the Corbets. It is of styles of building in picturesque contrast. half-timbered wing was built about 1524, he stone additions belong to the end of the ry. In one of the panelled rooms an oak iption is to be seen to the effect that it was de by me, Edward Huse, 1601." The ing was once moated, and the old bridge forms the approach. The detail of the er work in parts is very rich, and although wo parts adjoin rather than combine with other, there is an odd grace about the old ling which furnishes attractions sugges- to the artist. On the Wem-road is efield, where the Percies met Henry IV., were routed by him "in a trice," amden says, for the King was well ured for the attack, having made Shrews- specially strong. The excursionists walked this memorable site, and, passing along al meadows, reached the Collegiate Church ttlefield, restored by Mr. Pounteney Smith 62. It has a bold, handsome western tower, h is as wide as the aisleless nave and ancient cel. The former was gone, and Mr. Smith lified it and built a prettily-designed vestry ecorated Gothic, filling the windows with emnants of ancient glass of crude design. side windows of the church are large, and 14th-century traceries. The east end of church is also handsome, making the build- quite worth seeing. Inside Mr. Smith has nothing to excite one's admiration, while the stic tiles over the entire floor all on one show an expanse of vulgarity quite out of d with the spirit of old work. The absence step at the west end is most marked. The n-gate is Jacobean in date, with rich ngs and arched pieces, moulded posts and sters, square on plan and roofed in tiles. We do emember to have seen one like it anywhere. inuing the drive for some four or five miles yard, Strawbury Church was seen, where is a Saxon font and old glass in the choir, hen a mile or so away *Moreton Corbet*, a vast of two houses, the last—like the buildings of homas Tresham in Northamptonshire, with h it is contemporary—having never been ned. Sir Richard Corbet is recorded as the er, having brought the designs, or more ably his ideas concerning the style of his ided mansion, from Italy. Some of the nal drafts for the details of the building still , or did exist a few years ago, in the possession e family. Over the porch of the old house is nscription "S.A.C. 1576-78," also "I.R.C.," the crest of the elephant and castle. first initials refer to Sir Andrew Corbet. son, Robert Corbet, "Dyed of the plage." building was erected, as far as it went, about end of the 16th, or commencement of the century. In 1644 the house was garrisoned 'arliament, and sustained great injury. The s and shaped gables standing windowless, weird enough, and desolate; but some of detail is very crisp and fresh-looking, a specimen truly of the English Renaissance, gh not named in Mr. Wyatt Papworth's l chronological list of such remains. We last week a view of one end, showing one e most complete parts of the house. There crudeness about the detail, and it shows nt of thought on the part of the designer h is very remarkable, seeing how bold original the general treatment of the front must have been, judging from what remains. It would be an admirable thing to ss a properly-restored elevation of the main le drawn out, and we understand that exca- ns are shortly to be made with a view to ining a correct plan. Several hours were spent here. The church hard by is well , and makes a pretty picture in the trees, to the architect, is devoid of interest.

he ruins of *Haughmond Abbey*, standing near pot where Lord Douglas fell and was crushed is charger after the battle of Shrewsbury, he last place seen on Wednesday. To recount the chequered history of this Augustinian Monastery, and tell its privileges from Popes and other benefactors, such as King Henry II., in whose days the establishment was very powerful, and prospered till the Dissolution, when it passed to the Littletons of Pilaton Hall, to the Barker's, Kynaston's, and the Corbet's would occupy more space than can be afforded us. The church has nearly entirely gone; but the remains of the monastic buildings are very considerable still, and very beautiful. The cloisters on the south side of the church and the square chapter-house, a grand example of Transitional work, has a noble entrance of three round arches, windows being placed in the side openings. The effect is very similar to the rich Charente churches, and statues stand between the shafts of the jambs, as in Rochester Cathedral great doorway. They are evidently, however, of the 14th century date, with canopies over them. The locutory, or day room, is situated to the south of the chapter-house; and on the south side of the cloister, extending westward, is the refectory, with fine Decorated work about it. The Abbot's House and Guest Hall are interesting—the latter a remarkably handsome hall, lighted by large Decorated windows, and measuring 81ft. long. It has a big fireplace, and a newel staircase in one corner leads above. The 15th-century stone-built and gabled building called the Monk's Well is a curious vaulted little structure, to the rear of the chapter-house. After an early visit to the grand Church of St. Mary at Shrewsbury, Thursday's programme was entirely devoted to the delightful castle at *Stokesay*, and *Ludlow*, with its great church and castle, the Feathers Hotel, and other old timber houses, such as the Reader's House in the churchyard, and Ludford House, over the bridge, at the foot of Market-street. The journey, of course, was accomplished by railway to these two centres of interest. In the BUILDING NEWS for the 7th inst. we gave some views and a plan of Stokesay Castle, with a full description of the building, so that further remark here is unnecessary. Last week we published a view and plan of Ludlow Castle, and an account of its history, leaving nothing to be added now about the ruin. The parish church, dedicated to St. Lawrence, is a famous building ranking among the noblest examples of its class in the country both for its cathedral-like proportions and exquisite richness of its detail. The great central tower at the crossing, over which it forms a lantern, has just been recast by Mr. Thompson, the builder, of Peterborough, under the direction of Sir Arthur Blomfield, A.R.A., who is now restoring the chapel south of the choir. Sir Gilbert Scott did a considerable amount of repair to the building about thirty years ago, but we notice that one of the windows which he inserted in the hexagonal porch on the south of the nave is in its turn already commencing to split and perish. The choir stalls, with their quaint old misereres grotesquely carved with comical sculptures, the restored reredos over the high altar, the ancient and new glass, the tombs, and the screen and woodwork to the north chapel of the choir—are all features worthy of the architect's attention. The large classical organ-case inclosing the beautiful instrument by Schweuzer should be mentioned.

The new Jubilee Market Hall lately completed at Ludlow, is a "terror," and, whoever the architect may be, it is far from cheerful to realise that such coarse, vulgar, ill-designed work should be carried out in such a town for such an object and at such expense. The new premises in Market-street for Lloyd's Bank seem to bear the impress of the same crude hand, though the façade is a trifle less objectionable. As to the Feathers Hotel, it hardly deserves its fame, speaking architecturally, for the detail is anything but refined, and much of its outside elaboration is sham. The ceiling in the room upstairs is a handsome specimen of good plasterwork. The chimney-pieces came from Ludlow Castle, and we illustrated them last week. Mr. Thomas Yates read a description of the castle to the excursionists previous to lunch being served at "The Feathers."

Friday proved to be one of the most enjoyable days' of the week, and the weather throughout, though showery at times, was on the whole conducive to the pleasure of the outing. After about an hour's drive from Shrewsbury through a well-wooded and charming country, the party reached *Pitchford Hall*, a large rambling timber and plaster-built house, situated in a well-watered hollow. It forms three sides of a square with kitchen offices beyond, giving the plan of the letter F. The many-gabled pile has a picturesque skyline enriched with characteristic brick chimneys. In Leake and Evans's "Castles and Old Mansions of Shropshire," published at Shrewsbury some years ago, the late Mrs. Stackhouse Acton gave some rough studies of the house, but we remember no others being issued. A mill, the frequent adjunct of our old manor-houses, stood in the narrow deep declivity which comes between the hall and the churchyard. The Queen stayed at Pitchford Hall in 1832, the guest of the Earl of Liverpool, with the Duchess of Kent. The bituminous spring in the village gave the place its name. It was renowned for its "water like tarr, skim'd together like soft wax, it becomes more medicinall then other pitch." Marmaduke Rawdon in his 17th-century tour is thus quoted, and he adds: "In the Holy Land there are some springs that cast up a bitumus stuffe like this." Colonel Coates owns the mansion, which contains a large assemblage of rare Jacobean and other old furniture. The late Mr. Devy, the architect, did a good bit to improve the interior, and his work, as might be expected, is in harmony with the old work and in good taste. The building is entirely in "magpie" work, but the blacking of the timbers gives it a hard effect, so different from the silvery colour of old oak, as at Stokesay Castle. The summer-house in the lime-tree to the rear of the house is curious, and is shown as one of the features of the place. Altogether this visit was much appreciated. There is a curious effigy in oak in the church to one of the Pychfords, who is represented as a Crusader; otherwise there is nothing worthy of note in the building. The hospitality experienced in Shropshire by the associationists was marked by its complete absence, save in one instance—viz., Benthall Hall, where Mr. Bateman, who resides there, did indeed pull some lettuces, and give them to his brother architects unwashed, so that the Salopian salad was bestowed on the cattle. In Condover Hall there is every luxury. The chimneypieces, in fine Italian sculpture, are rich in material and colour. In the dining-room the cove over the hearth is in specially-made Doulton ware. The hall has a magnificent modern arched screen of florid design, and the great staircase, also new, has much good detail about it, though, for some reason or other, it is not satisfactory. The grotesque carved apes, painted and gilded, on the newels, are cleverly done, if somewhat out of place. Captain Cholmondeley informed his visitors that these beasts are to be removed and plain balls substituted. This we think a pity. No such alteration will ever make the staircase look like an old one, and these apes are certainly both characteristic and well cut. On the first floor there is a small narrow picture gallery with two pretty stone and marble chimneypieces, which look original. The principal porch bay is the best part of the entrance front, and the arcaded centre to the garden front, with the pedimented row of gables to the mezzanine floors over the arches, is an unusual and effective feature. The lead rainwater heads to the house are handsome 17th-century specimens. The church has been almost rebuilt. It has a noble western tower and a very wide nave without aisles. The new roof is an arched spandrel one, based, it seems, on the old one. The choir has new stalls, altar, and fittings. The vestry shows the same good taste, and some of the new work indicates the hand of a master such as the late Eden Nesfield or Mr. Norman Shaw. In the chapel north of the choir is some fine modern sculpture, the work of the present Squire Cholmondeley, who evidently is no mean artist. The altar tomb to his wife and child is a beautiful work, with good detail in the panels of the lower part, and the kneeling statue of his brother, sword in hand, is a successful attempt at sepulchral sculpture in harmony with church feeling and present day surroundings. The Jacobean half-timber gable of the south transept is, perhaps, the most remarkable part of the fabric. We gave a detailed sketch of it in our pages for the 7th inst. The excursionists held their final dinner at the George Hotel on Friday evening, when the usual toasts were honoured, and convivialities were continued to a late hour. Mr. Fox, of the George Hotel, spared no endeavour to secure the comfort of his visitors, and Mr. C. Wellard, the hon. quartermaster, again acted in his old capacity to the advantage

of everybody. On Saturday the party who remained in Shrewsbury visited the Abbey Church, where Mr. J. L. Pearson, R.A., has just built a beautiful chancel in an early and bold style, erecting a triptych elaborate in gold and colour. The western tower has been restored; but the nave has still to be reroofed. The Grammar School, now used as a Free Library and Museum, was also seen, the old market-hall, and Hill's Mansion—a most picturesque brick house, with a richly-treated stone bay and other features. The building is now used as a warehouse, and the timber-built part as a public tavern and a "doss" house. Next week we shall give another sheet of sketches from the neighbourhood of Ludlow.

Acton Burnell, the site of the next halt, is best known for its celebrated castle; but the church, close by, will perhaps call for the prime attention of the professional architect. It has a singularly beautiful Early English chancel, of elegant detail. The Geometrical east window figures, if we remember correctly, in Parker's "Glossary of Architecture." The building has lately been restored, and the restorer has inserted new cuspings in the rose centre. These on the exterior look too thin; inside they are more satisfactory. The seatings of the church have old pewings, cleverly worked in. Why any one who has shown so much good taste in other respects should use sham iron hinge-plates, and hang his doors with butts, we cannot understand. The fraud is evident to the visitor immediately on entering the building. The north tower, over the vestry, seems new; anyway, it is extremely pretty, and we like it much. It reminds one, in a general way, of the late G. E. Street's central tower in his design for St. Mary's Cathedral, Edinburgh. The alabaster and stone tombs in the north transept (1591), as well as the perfect brass of earlier date, are particularly interesting and suggestive. The E. E. font is an unusual example. The ruined Edwardian "Castle" of Acton Burnell, designed by the same hand as the Bishop's Palace at Wells, is a parallelogram on plan, the four corners being emphasised by square towers with very thick walls. The hall, on the north side, had large transomed windows, and for richness of colour and beauty of surroundings the water-colour artist need desire no more fitting subject for his pencil. Here Edward I. assembled his Parliament in 1283, while the Commons met in the barn hard by; but the fabric of this ancient Parliament House is now entirely gone save two gables, and the present castle was not really commenced till two years after this celebrated occasion. Bishop Brunell of Bath and Wells, Chancellor of England in 1292, built the present castle, and was engaged by his royal pupil to manage the marches of Wales.

The concluding visit of the day comprised *Condover Hall* and church, which were next seen. The house, erected in 1598 by Judge Owen, is a fine Elizabethan mansion of considerable extent, and built in a handsome local red stone is in sunlight rich in colour, which adds to its interest. The present occupier, Captain Cholmondeley, is to be congratulated on the exquisite care with which the house and gardens are maintained; but it cannot be said that the visitors received more than scant courtesy at his hands.

MASONRY AND STONE-CUTTING.*

By Lawrence Harvey.

(Thirty-Fourth Lesson.)

ST. GILES' SCREW, OR CORKSCREW VAULT.

I HOPE I shall be pardoned the homely English title I give to this vault in favour of its clearness. The surface of this vault is identical in character with some of our old-corkscrews, the thread of which was of circular section. It is formed by the spiral motion of the semicircular arch A′ M′ B′ (Fig. 236). The object of this structure is to form a vault on which the steps of stairs shall rest. This offers the great practical advantage over the dancing and circular stairs of Lessons 32 and 33, that here the steps, being independent of the structure, can be changed whenever required, whereas when the steps form a constructional part of the structure, they have to be patched with pieces let in when worn down, and remain for ever afterwards unsightly.

As the vault has to follow the rake of the steps, begin by drawing the steps according to formula given in the thirtieth lesson, the treading line 1, 2, 3 . . . (Fig. 235) being at 1ft. 7in. from the face of the solid newel. Then every point, such as L′ or M′ of the generating face-arch, will describe in its motion a helix with the same rise as that of the steps above. To draw the elevation of the helix described by the point L′, for instance, mark the heights of 12 risers on a slip of paper, and pin the slip on your drawing with its lowest division at the level of L′; the other divisons will give you points of the helix where L′ has come over the lines 0 1, 0 2, 0 3, . . . &c. (Fig. 235), of the risers. The plan of the helix is the circle of radius O L (Fig. 235). By placing the lowest division of the slip of paper at the level of every other point of interest in the arch, the joints, the mid-points, &c., the helixes described by these points are easily drawn.

Now the joints L′R′, M′P′ of the face-arch will describe surfaces similar to those of a screw with triangular thread; these surfaces will be the bed-joints of the vault. It is to be noted that the joint lines L′R′, M′P′ are not normal to the soffit of the vault, for the normal should be normal to the helix; but they are found to be near enough to the normals for practical purposes.

The back of the vault is the helicoid described by the motion of the horizontal line which forms the upper part of the arch stones on section.

To divide the course engendered by the pentagon L′ M′ P′ Q′ R′ in a number of arch stones, cut that course by planes normal to the helix described by the mid-point D′ of the arc L′ M′.

As all the arch stones of the same course are identical, it is sufficient to draw one only. Let the joint planes be taken through the points $d\,d'$, $d_2\,d''$ on the medium helix D′ δ' D″, D δ D_2, at an equal distance from the ray O δ, which is perpendicular to the elevation plane.

To determine the joint plane through the point $d\,d'$, draw the plan and elevation of the tangent to the helix in $d\,d'$; let the subtangent $d\,t$ be equal to three divisions of the circle D d; then the elevation will be $d'\,t'$, in which t' will be at a level of three steps below d'.

Now the joint plane is normal to the tangent drawn, and its intersections with the five faces of the arch stone have to be found. The readiest way of delineating these intersections is to slide the plane up the helix, as if it were up the thread of a corkscrew, and bring it up to the point $\delta\,\delta'$, where it will be perpendicular to the elevation plane, and be entirely projected on the line $u'\,v'$, drawn at right angles with the tangent $\delta'\,\theta'$. Then mark the points $\lambda'\,\delta'\,\mu'\,\pi'$, . . . where the trace $u'\,v'$ meets the arrises of the arch stones, and also intermediary helices taken through the mid points of the sides M′P′, P′Q′, . . . ; and then find the projections of all these points on the plan; you will be able to draw through them the horizontal projection $\lambda\,\delta\,\mu\,\pi\,\chi\,\rho$ of the section of the stone by the joint plane. This done, you must slide back the joint plane to its former position. This means redrawing the section in l, d, m, p, . . . where the points are at the same distance from the ray $o\,d$ as the former points were from $o\,\delta$. Having the plan of the section, the elevation is readily found.

By a similar operation the joint is drawn at the upper end of the stone, and the whole of the arch-stone is entirely delineated. Now the stone prism from which this arch-stone is to be taken is comprised within two vertical planes $g\,h_2$, $f\,e_2$, perpendicular to the ray O δ; two planes perpendicular to the preceding, and with their vertical traces $g'\,g''$, $h'\,h''$ parallel, and inclosing as near as possible the elevation of the arch-stone; and, lastly, the planes which form the end joints of the arch-stone. These last planes will cut the others along the parallelograms $e\,f\,g\,h$, $e'\,f'\,g'\,h'$ and $e_2 f_2 g_2 h_2$, $e''\,f''\,g''\,h''$, which are constructed as follows: Imagine through the point d and in the joint plane a horizontal line projected on plan $o\,a\,d\,b$ and on elevation in $a'\,d'\,b'$; this horizontal line will meet the vertical planes ff_2, gg_2 of the stone prism in the points $a\,a'$, $b\,b'$; then, through these points draw $e'\,f'$ and $g'\,h'$ perpendicular to the tangent $d'\,t'$, and these will be the sections of the front and back face of the prism with the joint plane. Project then the points $e'\,f'\,g'\,h'$ on the horizontal plane, and you have the parallelogram $e\,f\,g\,h$. The other parallelogram, $e_2\,f_2\,g_2\,h_2$, is constructed in the same way.

To work the stone, the exact shape of these ends of the prism are required with the section of the joint which they contain. To do this, again slide the joints to the position $u'\,v'$, where w delineated the section. You may do it b drawing on plan the end parallelogram in ε and then projecting these points in the eleva on the line $u'\,v'$. But it will be found tha vertical lines of projection meet the line $u'\,v'$ u too sharp an angle to be able to determine rately the position of the points on the eleva It is therefore much safer to consider that point has, in sliding upwards, risen the heig three steps, and place it at that level on above its former position. The same oper should be repeated for the other joint p which will be slid down to $u'\,v'$.

Now, to find the real shape of both these planes, twist the plane round ($u'\,v'$, $\delta\,\theta$) so bring it parallel to the elevation. This dra has been produced in Fig. 238 by transpo $u'\,v'$ parallel to itself in $u_3\,v_3$. After twi the plane, the points will be on lines sta from λ', δ', μ', . . . and at right angles with their distances from $u'\,v'$ will be equal to distances from $\delta\,\theta$ on the plan. It is to be n that in Fig. 238 we have one section of the a stone only, for the section is the same everyw for the same course of stones; but, on the o hand, the two sections of the containing p differ, and therefore the Fig. 238 gives us moulds.

To get the arch stone, it is necessary to w out of the operation prism an operation heli generated by the rectangle Q′X′Y Z′ (Fig. 2 like the string of an ordinary circular stairs open well-hole. The intersection of that by the joint plane is the curvilinear quadrila $x_3\,y_3\,z_3\,\chi_3$ (Fig. 238), of which the two $y_3 z_3$ and $x_3\chi_3$ are arcs of ellipses. It is noted that the upper and lower planes of operation prism must be selected so as to c prise within them the operation helicoid. the intersections of the upper and lower fa the operation prism with the cylindrical out and inner side of the operation helicoid ha be found as shown (Fig. 239).

Working of the Stone (Fig. 240).—Begi working the operation prism exactly as d in Figs. 235 and 237, and delineate on the j planes the sections both of the arch stone and operation helicoid by means of moulds t from Fig. 238. Then apply on the upper lower faces of the prism of the mould t from Fig. 239, and work from these the cylindrical surfaces of the opera helicoid. By placing a flexible straight on the cylindrical sides, the helixes w guide the upper and the lower planes the operation helicoid will be delineated, these surfaces can be worked. Then every of the arch stone can be delineated: those w are on the cylindrical surfaces by means flexible straightedge; those on the upper lower surfaces by means of a trammel. working of the surfaces of the stone betw these lines is then an easy matter, provided guiding marks taken from Fig. 239 have preserved on the surfaces of operation until completion of the stone.

The springers belong on the one side to wall, and on the other to the newel (Fig. The newel will therefore bear the thread screw (Fig. 243), which will be cut by the pl of the horizontal joints along two curves, and K $i''\,w$ (Fig. 235), constructed as follow profile S′N′B′ of the springer (Fig. 236) is by the joint-plane S′S″ in the point (S′, B); when the profile has slided upwards the heig two steps, the point i of the profile will risen up to the joint-plane, and its positio the plan will be on arris of step 2 in i''; an the difference of level between N′ and S′ be, $\frac{3}{4}$ of a riser, then N will have reached on pla the arc N K being equal to three-quarters o tread on that line. The same constructi applicable to finding the section of the surfa the bed-joint. As this last surface migh continued to the centre line, the curve of i section, if prolonged, would pass through centre as shown.

The Square St. Giles' Screw (Fig. 244).—A drawing the plan of the steps as shown, a s ellipse is placed on the diagonals forming angles, and at the level given by the steps. jointing is then drawn on plan as shown, an points where the joints meet the diagonal projected on the groins above; the joints an the generators of the vault are straight and a skew surface. The bed-joints may be pl through the arrises of the joint lines on the and the joint lines of the section A′M′N′P′

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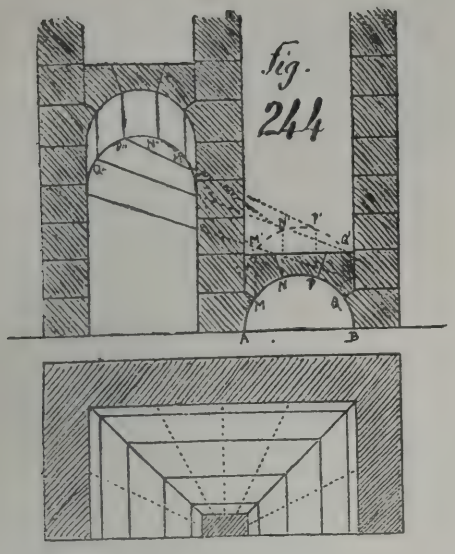


Fig. 244

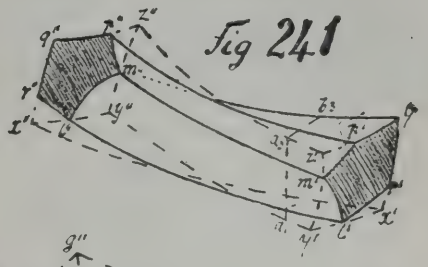


Fig 241

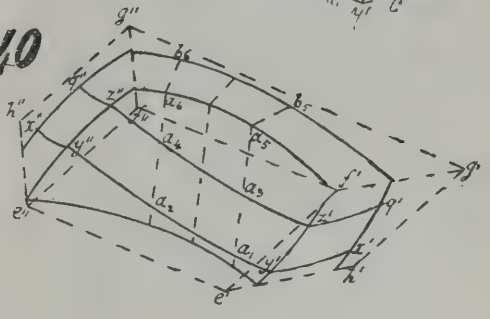


Fig. 240

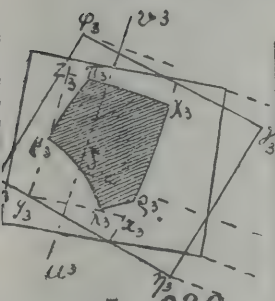


Fig. 238

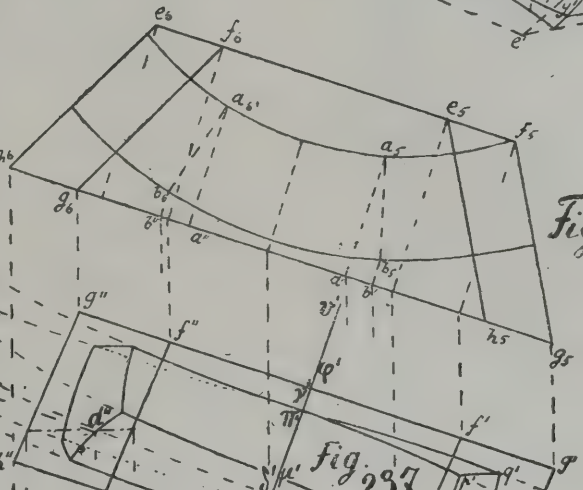


Fig 239

Fig 237

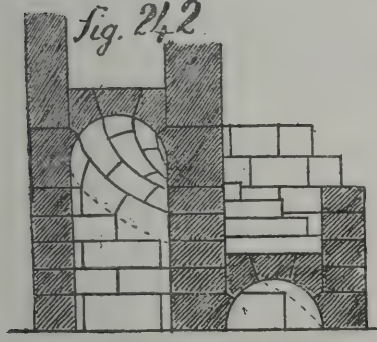


Fig. 242

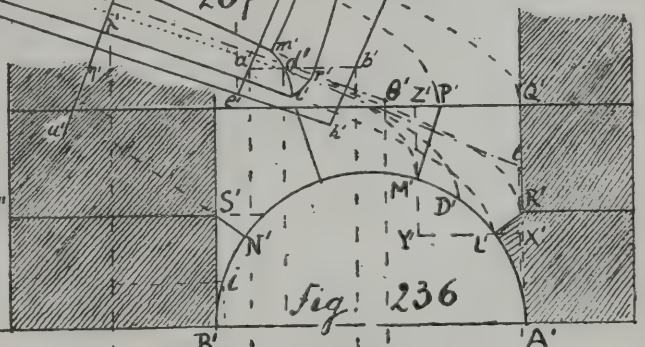


Fig. 236

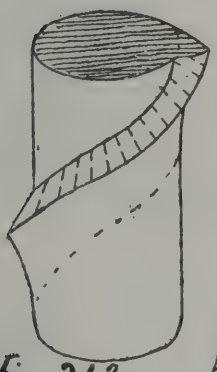


Fig. 243

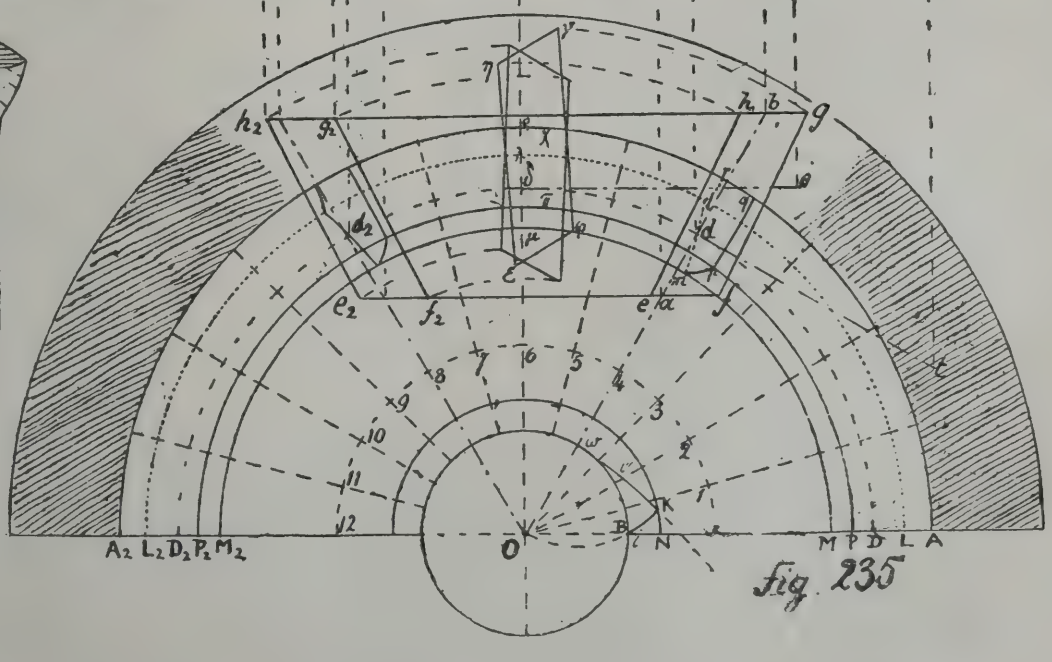


Fig. 235

Before closing this lesson, I beg to call attention to two examples of the circular St. Giles' screw to be seen in London. The one is a quadrant of the vaulting which supports the steps of the stairs to the Embankment from Waterloo Bridge; the other is the public staircase which leads up to the dome of St. Paul's Cathedral.

HOT-WATER ENGINEERING.—XI.

Supply of Hot Water for Baths and Domestic Purposes.

the cylinder system (*concluded*).

IN attempting to lessen the cost of a complete cylinder apparatus, having a returned rising main, it was tried whether the cold supply could not be brought into the secondary return at a high point as Fig. 33, by this means saving from 40ft. to 70ft. of pipe, and the labour of fixing. Those who have read the previous papers will see how this attempt failed, for the water that issued from the taps was more cold than hot, as the arrows indicate. As the distance from the cold-water cistern to the tap is less, and the route more direct around the top of the circulating pipes than it is passing down through the cylinder and up again, there would be really more cold water drawn than hot; but if the tap was at the bottom of the house near the cylinder, the flow each way would be nearly equalised. In any case, however, this method, without some further addition, would be a failure.

If we introduce a stop-back valve in this cold supply pipe, the trouble will be overcome. This valve, which can be obtained at most tap-makers, only permits the water to flow through in one direction. Any attempt that the water may make to pass in the opposite direction is frustrated by the motion of the water itself closing the valve. This valve, if properly constructed, is reliable, and will not fail. It should be loosely fitted, so that it may answer to every movement of the water. This is understood by the makers. The position it should be fixed in is as Fig. 34, so that the water may flow unchecked from the rising main into its return; but when the tap is opened, and the cold water seeks a passage this way, it is stopped. It will be seen that when the tap is closed the water circulates normally; but when the tap is opened the rising main conveys the hot water up, while its return acts, for the time being, as a cold supply service. It must be particularly noted that when this method is adopted, the secondary return must not be connected into the upper part of the cylinder, but into the bottom, as if it were a cold supply-pipe. This is important, and should not be overlooked.

It should have been mentioned earlier that the cold supply service must be 1in. (with full way stop-cock as explained) for works of an ordinary character. A small apparatus will permit of a ¾in. pipe being used; and in extensive works the pipe may need to be 1¼in. or even larger, but for residence work the size first mentioned is almost invariably used. This applies more strongly to the cylinder than to the tank system, as in the latter case there is a store of hot water above the tap, and the outflow is not so greatly governed by the inflow of cold water as in the former system.

In concluding the cylinder system, it is necessary to give some approximate idea as to what sized reservoir should be used to meet a certain demand, and at the same time to suggest, as near as possible, the boiler that is suited for the apparatus, for the reservoir should be suited to the boiler, and *vice versâ*. A very common fault is fallen into in using too large a cylinder, there being some idea existing that the larger the reservoir, the greater the supply of hot water. This, however, is very incorrect, as will be shown. In suggesting the capacity a cylinder should be, it may be made to apply to a tank of the tank system, as in both cases the same-sized reservoir would be used to meet a certain demand; the difference in the system does not make a difference in the size of the reservoir.

Commencing at the smallest works, the reservoir for two, or perhaps three taps—viz., scullery sink, bath, and lavatory—should be 25gals.; some very small works might have one of 20gals. capacity, but never less. For this the boiler would only need to be of the saddle shape, with a fire 9in. wide; but let it be very clearly understood that this boiler and small fire would only be suitable in an instance where the bath and other taps were all within about 20ft. to 30ft. of the boiler itself—on the floor next over the kitchen probably. This is usually the case in small and moderate-sized houses.

For works on a little larger scale, say a medium-sized detached residence having a tap in scullery, one at bath, a housemaid's sink upstairs, and lavatory basin, a saddle boiler, if of good length and with a fire 10in. or 11in., would do;

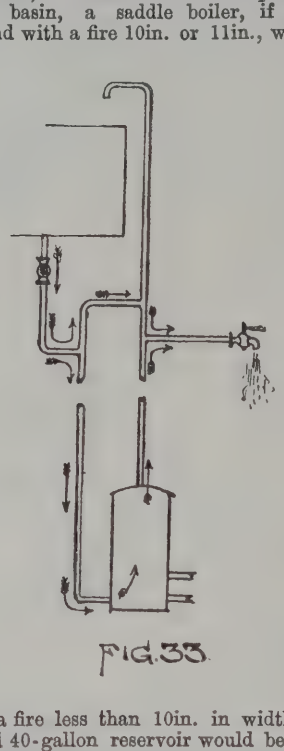


FIG. 33.

but with a fire less than 10in. in width a boot boiler and 40-gallon reservoir would be needed. In this instance, it is supposed that the system of pipes does not extend far from the kitchen; but it may be mentioned that the cylinder system permits of the pipes extending further than the tank system without prejudice to general efficiency. If the least doubt ever exists as to whether a saddle-shape will be capable, by all means use a boot boiler. Boot boilers act so much quicker, with so little attention and fuel, that they should always be used, whether the works need them or not, if the extra cost is not objected to.

When the requirements are a little greater,

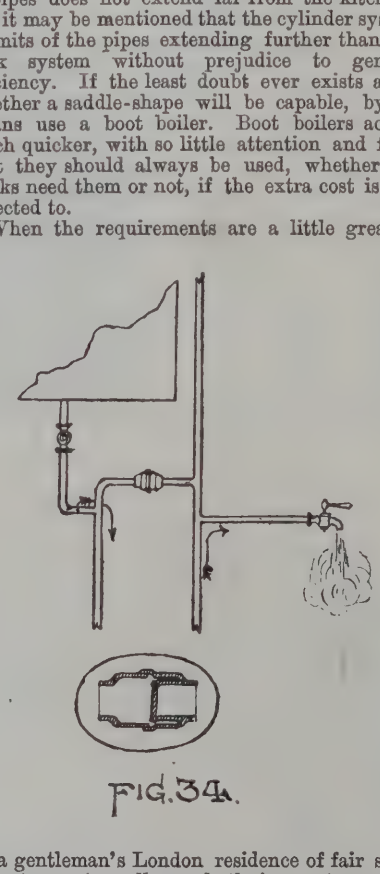


FIG. 34.

say a gentleman's London residence of fair size, with taps at scullery, butler's pantry, two lavatories, bath, and housemaid's sink distributed about the building, a boot boiler would be needed; but probably the range fire would need to be wider than 11in. This sized fire (with a boot boiler) should be considered the minimum, and larger would be needed if the number of servants kept, or the general requirements, made a considerable demand for hot water. The reservoir would require to be 50 gallons. The feature that goes far towards testing the capabilities of the boiler in this example is the butler's pantry sink. These sinks which are used for washing plate, &c., hold a large bulk of water; the water is required and is frequently changed, as it has to be They use quite as much water as two or housemaids' sinks.

In a larger residence with one or two taps (or perhaps only the same number as i last example, but with a greater demand fo water), a boot boiler, with 14in. fire and 60 gallon cylinder, would be needed. This n also be considered a minimum size of fi although in some large residences the numb taps is quite limited, the demand for hot is far from being so, on account of the large of domestics employed. Sometimes a dra service is taken from the domestic apparat the coachhouse or stable-yard, and in this the power of the boiler will be greatly t As before explained, it is much better in way to use an independent boiler if an possible. These articles have been dwelt fully in the earlier papers, and their advant cannot be over-estimated. The indepen boiler could be used by itself or worked in junction with a range boiler. The metho connecting up two boilers to one apparatus be spoken of and illustrated presently.

There is no doubt that in these two or t examples many will consider that the reser (cylinder or tank) are not of reasonable or portionate size—too small in fact. There prevailing idea that these articles should b full size, their greater capacity being neces for, and in some way adding to, the efficienc the works. No idea could be more errone and the writer wishes it to be clearly unders that the capacity of reservoirs given is the m mum, not the minimum, and smaller can be often with more pleasing results.

Those who argue for large reservoirs p out that they insure a fully sufficient bu hot water for all purposes, their capacity b such as to allow of this ample storage; and the argument ends. Opposed to this idea firstly, the fact that the larger the reservoir, longer its contents are in becoming heated, posing we wish to get it wholly full of hot w to benefit by its greater size. Now the partic objection to this is that, as a rule, there is a re supply of hot water wanted the first thing in morning for baths (adults and children), and the exception rather than the rule for boilers t capable of getting the reservoirs full of hot wa whether they be small or large, at this early h so the increased capacity would be of no vantage at this time. This is, in the majorit residences, the most important time in the when the quickest results are required, and objection, therefore, to the large reservoir at hour is that, as it has such a large bulk of water within it, it retards the storage of water, owing to the cooling influence it ef upon the heated water that comes up from boiler. With a smaller cylinder this ill e would be greatly reduced, and there would be best possible chance of the whole of the cont of the cylinder being heated. It will always found that as soon as the water near the bot of the cylinder (the coolest point) gets a l warm, the heating process proceeds r rapidly. While the water at the bottom of cylinder is cold, the boiler does not seem t doing such effective work, owing to the coo influence of this cold water upon that whic heated. This only bears important applica when the cylinder is being heated up the thing in the morning, when all water is to start with, yet when rapid results are p ticularly needed.

It is much the best to have a small reservoi this aids in getting hot water quickly w first lighting the fire. During the remainde the day its contents get heated very quickly efficiently in the intervals that occur between times hot water is needed. Of course, smaller the reservoir, the quicker and oft its contents are wholly hot, and it is much be in every way to have a 30-gallon reservoir of hot water, than one of double the capacity hot and half cold. A small reservoir does limit the quantity of hot water to be obta any more than a large one increases it, as is c monly imagined. If the range fire was put when once the reservoir was full of hot wa then it would be an advantage to have a l one to last a long time; but this is not the c for as a rule the fire is alight for about 15 h a day, and the boiler has heat applied to it this time. A cylinder as small as 25 gallons

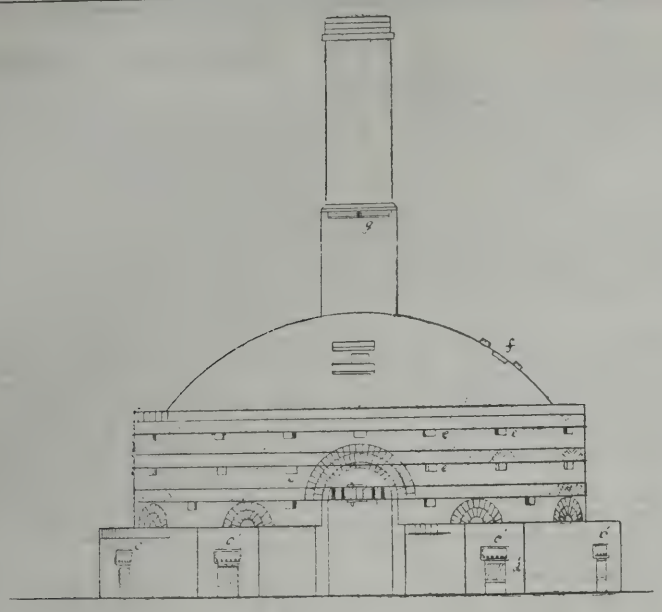


FIG. 1.

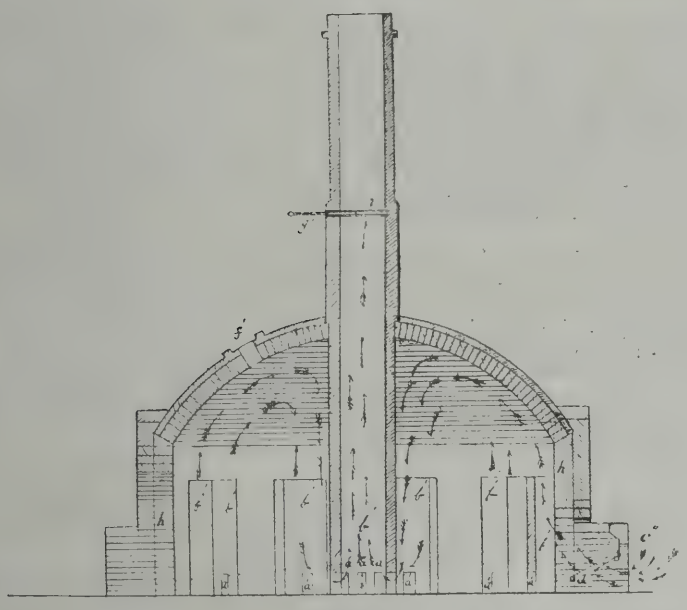


FIG. 2.

nish sufficient water for two baths at once, l this small size could have its contents heated again by the time the baths were disengaged. is almost needless to add that, besides other vantages, small cylinders and tanks are of the st expense.

A TERRACOTTA KILN.

THE following details of an over-draught terracotta kiln, as used in the North Wales tteries, will probably interest many readers. e most generally used and economical form of n for the firing of terracotta is that known as over-draught kiln, so called in contradis-ction to the muffled kiln. In the latter the me does not come into contact with the wares, hich are consequently produced with a more iform tone of colour than those fired in the er-draught kiln, in which the flame actually sses through the wares, as shown in the adjoin-g section, and indicated by arrows. Neverthe-s, the wares of the over-draught kiln are much eferred to those of the muffled kiln. The hole of the inside surface of the kiln, including e dome, is composed of a 9in. lining of fire-rick; the centre, or extract flue, and the side ues and furnaces, are built entirely in firebrick d fireclay; the outer portions in ordinary icks and mortar. The kiln represented is 16ft. ameter, has nine furnaces, *e e' e''*, with a corre-onding number of side, or inlet, flues, of 4½in. ickwork, attached thereto. The furnaces are ilt with a vertical, or straight joint, and are ot in any way attached or bonded into the brick-work of the kiln. They can, therefore, when burnt out, be easily renewed at very little expense and trouble. The subjoined letters are explanatory of the parts of kiln indicated by corresponding letters thereon:—*a a'*, air-holes in extract flue, for admission and exit of heated air and fire; *b b'*, inlet flues or shafts; *c' c' c''*, furnaces; *d d'*, furnace bars; *e*, projecting brick to carry bands round kiln; *f f'*, examination holes to test the wares; *g g'*, damper to regulate draught and heat; *h*, firebrick lining; *i*, damper frame.

The bands carried on corbel bricks *e* are obtained from neighbouring collieries, and are the

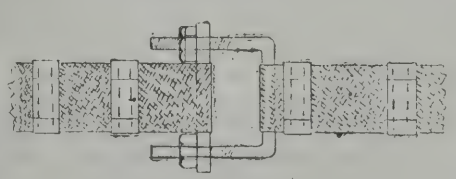


FIG. 3.

disused straps used for hoisting the "cage" from the coalpits. They are very flexible and strong, and well suited to stand against the expansion of the kiln during the process of firing. Each band is brought up to the required tightness by means of the bridle-joint (Fig. 3), which admits of tightening or slacking the band at pleasure by means of the nut or screw shown thereon. In a kiln of this kind there is always a steady concentration of heat and flame at the bottom of the kiln, especially at the exit-holes of the central shaft; for this reason, it is always advisable to stack the bottom of the kiln with bricks for a height upward of at least 2ft., the remaining space being stacked with terracotta—overfiring of the bricks being of less consequence than the chance of producing wares with a bluish, metallic-like appearance, the result of of overburning. The firing is started and left in a low condition for forty-eight hours, after which it is fired in full for an equal length of time, and then allowed to very gradually cool, sharp or cold draughts of air cracking the wares. In some cases the kiln is cooled by means of subterraneous flues, cooled by dampers leading from the kiln to the drying sheds, thus economising and using the heat in another stage of the manufacture.

F. WALKER.

PRICES.—XIV.*

[It will have to be borne in mind that the prices given do not include any provision for an increase in the cost of labour, should the men now on strike obtain the 10d. per hour; and contracts taken pending the strike should be entered into with caution, and ought to have a clause allowing an increase if the 10d. is paid, though it scarcely seems probable that it will be.]

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MASON (*continued*).

Marbles in slabs, unfixed, and including profit:—

			£	s.	d
Emperor's Red...	¾in	thick.....per foot super.	0	2	9
Ditto	1in.	ditto..... ditto	0	3	4
Ditto	1¼in.	ditto..... ditto	0	4	2
Ditto	1½in.	ditto..... ditto	0	4	9
Ditto	2in.	ditto..... ditto	0	5	10
Ditto	2½in.	ditto..... ditto	0	6	9
Ditto	3in.	ditto..... ditto	0	7	9
Ditto	3½in.	ditto..... ditto	0	8	9
Ditto	4in.	ditto..... ditto	0	9	9
Ditto	4½in.	ditto..... ditto	0	10	9
Levante	¾in.	ditto..... ditto	0	3	3
Ditto	1in.	ditto..... ditto	0	4	3
Ditto	1¼in.	ditto..... ditto	0	5	6
Ditto	1½in.	ditto..... ditto	0	6	6
Ditto	2in.	ditto..... ditto	0	7	9
Ditto	2½in.	ditto..... ditto	0	9	0
Ditto	3in.	ditto..... ditto	0	10	0
Ditto	3½in.	ditto..... ditto	0	11	3
Ditto	4in.	ditto..... ditto	0	12	3
Ditto	4½in.	ditto..... ditto	0	13	3
Irish Green	¾in.	ditto..... ditto	0	2	9
Ditto	1in.	ditto..... ditto	0	3	4
Ditto	1¼in.	ditto..... ditto	0	4	3
Ditto	1½in.	ditto..... ditto	0	4	8
Ditto	2in.	ditto ..... ditto	0	5	9
Ditto	2½in.	ditto..... ditto	0	6	9
Ditto	3in.	ditto..... ditto	0	7	9
Ditto	3½in.	ditto..... ditto	0	8	9
Ditto	4in.	ditto..... ditto	0	9	9
Ditto	4½in.	ditto..... ditto	0	10	9
St. Sylvester.....	¾in.	ditto..... ditto	0	3	9
Ditto	1in.	ditto..... ditto	0	4	4
Ditto	1¼in.	ditto..... ditto	0	5	6
Ditto	1½in.	ditto..... ditto	0	6	2
Ditto	2in.	ditto..... ditto	0	7	3
Ditto	2½in.	ditto..... ditto	0	9	0
Ditto	3in.	ditto..... ditto	0	10	3
Ditto	3½in.	ditto..... ditto	0	11	9
Ditto	4in.	ditto..... ditto	0	13	0
Ditto	4½in.	ditto..... ditto	0	14	6
Rouge Royal ...	¾in.	ditto..... ditto	0	1	10
Ditto	1in.	ditto..... ditto	0	2	2
Ditto	1¼in.	ditto..... ditto	0	2	8
Ditto	1½in.	ditto..... ditto	0	3	0
Ditto	2in.	ditto..... ditto	0	3	10
Ditto	2½in.	ditto..... ditto	0	4	4
Ditto	3in.	ditto..... ditto	0	4	10
Ditto	3½in.	ditto..... ditto	0	5	6
Ditto	4in.	ditto..... ditto	0	6	4
Ditto	4½in.	ditto..... ditto	0	7	0
St. Ann's	¾in.	ditto..... ditto	0	1	10
Ditto	1in.	ditto..... ditto	0	2	2
Ditto	1¼in.	ditto..... ditto	0	2	8
Ditto	1½in.	ditto..... ditto	0	3	0
Ditto	2in.	ditto..... ditto	0	3	10
Ditto	2½in.	ditto..... ditto	0	4	4
Ditto	3in.	ditto..... ditto	0	4	10
Ditto	3½in.	ditto..... ditto	0	5	6
Ditto	4in.	ditto..... ditto	0	6	4
Ditto	4½in.	ditto..... ditto	0	7	0

Sicilian marble scantling sawn to size, including profit, not fixing.

Ditto	7in.	unassorted .....per foot super.	0	7	0
Ditto	8in.	ditto ..... ditto	0	8	3
Ditto	9in.	ditto ..... ditto	0	9	3
Ditto	10in.	ditto ..... ditto	0	10	6
Ditto	11in.	ditto ..... ditto	0	11	6
Ditto	12in.	ditto ..... ditto	0	12	6
Ditto	7in.	selected best quality ditto	0	7	9
Ditto	8in.	ditto ..... ditto	0	8	10
Ditto	9in.	ditto ..... ditto	0	10	3
Ditto	10in.	ditto ..... ditto	0	11	6
Ditto	11in.	ditto ..... ditto	0	12	3
Ditto	12in.	ditto ..... ditto	0	13	3

Ditto, unworked curbs.

Ditto	7 by 2½	unassorted ..... ditto	0	2	4
Ditto	8 by 2½	ditto ..... ditto	0	2	7
Ditto	9 by 2½	ditto ..... ditto	0	2	10
Ditto	7 by 3	ditto ..... ditto	0	2	11
Ditto	8 by 3	ditto ..... ditto	0	3	0
Ditto	9 by 3	ditto ..... ditto	0	3	4
Ditto	10 by 3	ditto ..... ditto	0	3	8
Ditto	6 by 3½	ditto ..... ditto	0	3	0
Ditto	7 by 3½	ditto ..... ditto	0	3	3
Ditto	8 by 3½	ditto ..... ditto	0	3	9

Sicilian—unworked curbs :—			£	s.	d.
Ditto	9 by 3½ unassorted ..	per foot super	0	3	10
Ditto	10 by 3½ ditto	ditto	0	4	0
Ditto	11 by 3½ ditto	ditto	0	4	6
Ditto	6 by 4 ditto	ditto	0	3	0
Ditto	7 by 4 ditto	ditto	0	3	4
Ditto	8 by 4 ditto	ditto	0	3	8
Ditto	9 by 4 ditto	ditto	0	3	11
Ditto	10 by 4 ditto	ditto	0	4	1
Ditto	11 by 4 ditto	ditto	0	4	6
Ditto	7 by 5 ditto	ditto	0	4	0
Ditto	8 by 5 ditto	ditto	0	4	4
Ditto	9 by 5 ditto	ditto	0	4	9
Ditto	10 by 5 ditto	ditto	0	5	2
Ditto	11 by 5 ditto	ditto	0	5	8
Ditto	8 by 6 ditto	ditto	0	6	6
Ditto	9 by 6 ditto	ditto	0	5	11
Ditto	10 by 9 ditto	ditto	0	6	6
Ditto	11 by 6 ditto	ditto	0	6	9

Best quality selected sawn curbs.

Ditto	7 by 2½ ditto	per foot run	0	2	7
Ditto	8 by 2½ ditto	ditto	0	2	10
Ditto	9 by 2½ ditto	ditto	0	3	0
Ditto	7 by 3 ditto	ditto	0	3	2
Ditto	8 by 3 ditto	ditto	0	3	3
Ditto	9 by 3 ditto	ditto	0	3	6
Ditto	10 by 3 ditto	ditto	0	3	11
Ditto	6 by 3½ ditto	ditto	0	3	3
Ditto	7 by 3½ ditto	ditto	0	3	5
Ditto	8 by 3½ ditto	ditto	0	3	9
Ditto	9 by 3½ ditto	ditto	0	4	0
Ditto	10 by 3½ ditto	ditto	0	4	2
Ditto	11 by 3½ ditto	ditto	0	4	8
Ditto	6 by 4 ditto	ditto	0	3	2
Ditto	7 by 4 ditto	ditto	0	3	7
Ditto	8 by 4 ditto	ditto	0	3	11
Ditto	9 by 4 ditto	ditto	0	4	2
Ditto	10 by 4 ditto	ditto	0	4	4
Ditto	11 by 4 ditto	ditto	0	4	9
Ditto	7 by 5 ditto	ditto	0	4	2
Ditto	8 by 5 ditto	ditto	0	4	6
Ditto	9 by 5 ditto	ditto	0	5	0
Ditto	10 by 5 ditto	ditto	0	5	4
Ditto	11 by 5 ditto	ditto	0	5	10
Ditto	8 by 6 ditto	ditto	0	6	0
Ditto	9 by 6 ditto	ditto	0	6	4
Ditto	10 by 6 ditto	ditto	0	6	9
Ditto	11 by 6 ditto	ditto	0	7	3

Sicilian marble steps, unfixed, including profit.

Round-nose treads and risers...	per foot super.	0	5	0
Ditto moulded on edge	ditto	0	6	6
Ditto 9 by 6 square-edged	per foot run	0	15	6
Ditto 12 by 6 ditto	ditto	0	18	0
Ditto 9 by 6 plain spandrel and prepared bird's-mouth joints	ditto	0	13	6
Ditto 12 by 6 ditto	ditto	0	15	0
Ditto 9 by 6 ditto sunk riser and rounded tread	ditto	0	14	9
Ditto 12 by 6 ditto	ditto	0	16	6
Ditto 9 by 6 ditto with sunk riser and moulded edge	ditto	0	17	6
Ditto 12 by 6 ditto ditto ...	ditto	0	19	0
Ditto 9 by 6 square steps, sunk riser and moulded edge	ditto	0	18	9
Ditto 12 by 6 ditto ditto ...	ditto	1	2	0

Wall panelling and counter-tops, worked and polished, and profit; unfixed, square edges :—

Sicilian	¾in. thick	per foot super.	0	2	6
Ditto	1in. ditto	ditto	0	2	9
Ditto	1¼in. ditto	ditto	0	3	2
Ditto	2in. ditto	ditto	0	4	3
Vein	¾in. ditto	ditto	0	2	9
Ditto	1in. ditto	ditto	0	3	0
Ditto	1¼in. ditto	ditto	0	3	6
Ditto	2in. ditto	ditto	0	4	6
St. Ann's or Rouge Royal—	¾in. thick	ditto	0	3	9
Ditto	1in. ditto	ditto	0	4	0
Ditto	1¼in. ditto	ditto	0	4	6
Ditto	2in. ditto	ditto	0	5	3

Black and white marble floor tiles, laid complete, with profit :—

Plain black and white squares...	per yard super	0	16	0
Ditto half tiles	ditto	0	17	0
White octagon black squares ...	ditto	0	19	6

Labours :—

Plain work and polishing to ¾in. edges of Sicilian or Vein...	per foot run	0	0	2
Ditto ..... 1in. edges.....	ditto	0	0	2½
Ditto ..... 1¼in. ditto	ditto	0	0	3
Ogee mould to... ¾in. ditto.....	ditto	0	0	6
Ditto ..... 1in. ditto.....	ditto	0	0	7
Ditto ..... 1¼in. ditto.....	ditto	0	0	8
Ditto ..... 1½in. ditto.....	ditto	0	0	10
Ditto ..... 2in. ditto.....	ditto	0	1	3
Thumb mould ... ¾in. ditto.....	ditto	0	0	5
Ditto .. .. 1in. ditto.....	ditto	0	0	6
Ditto ..... 1¼in. ditto.....	ditto	0	0	7
Ditto ..... 1½in. ditto.....	ditto	0	0	9
Ditto ..... 2in. ditto.....	ditto	0	0	11
Rounded edge .. ¾in. ditto	ditto	0	0	5
Ditto ..... 1in. ditto.....	ditto	0	0	6
Ditto ..... 1¼in. ditto.....	ditto	0	0	7
Ditto ..... 1½in. ditto.....	ditto	0	0	9
Ditto ..... 2in. ditto.....	ditto	0	0	11
Two reeds ..... 1in. ditto.....	ditto	0	0	8
Ditto ..... 1¼in. ditto.....	ditto	0	0	10
Ditto ..... 1½in. ditto.....	ditto	0	1	0
Ditto .... 2in. ditto.....	ditto	0	1	3
Three reeds ..... 1in. ditto.....	ditto	0	0	10
Ditto ..... 1¼in. ditto.....	ditto	0	1	0
Ditto ..... 1½in. ditto.....	ditto	0	1	3
Ditto ..... 2in. ditto.....	ditto	0	1	6
¾in. flutes	per foot run	0	0	5
¾in. ditto	ditto	0	0	6
¾in. ditto	ditto	0	0	7
1in. ditto	ditto	0	0	8
1¼in. ditto	ditto	0	0	9
Rebated back joint		0	0	6
Ditto sunk		0	0	8
Plain rounded corners, 1in.....	each	0	0	4
Ditto on rounded edge	ditto	0	0	8
Ditto on moulded ditto.....	ditto	0	0	10
Ditto on two reeds	ditto	0	1	0
Ditto on three reeds	ditto	0	1	6
Notchings	ditto	0	0	9

CHIPS.

The additions to St. Mary's Catholic Schools, Widnes, are being warmed and ventilated by means of Shorland's patent Manchester grates, which have proved so satisfactory in the old schools, the same being supplied by Mr. E. H. Shorland, of Manchester.

Unity Church, Snowhill, Wolverhampton, is to be put into a thorough state of repair. Mr. Eachus, architect, of Bank-buildings, Lichfield-street, has examined and reported on the edifice. Estimates have been obtained for the renovations necessary, and the tender of Mr. Charles E. Burton, builder, of Heath Town, for the general builders' work has been accepted.

The committee of the combination poor-house at Dumbarton have under consideration plans by Messrs. McWhannel and Rogerson, architects, of Glasgow, for the enlargement of the house by 100 beds, at an estimated cost of £10,000.

The foundation-stone of new infants' National schools at Ashbourn, Derbyshire, was laid last week. Mr. G. M. Coulson, of Derby, is the architect.

At Northmolton, on Friday, a new Wesleyan chapel was opened. The building, which is Gothic in style, is erected by the side of the old chapel room, which was built in 1836. Local stone has been employed, relieved with freestone dressings. The chapel is seated with pitch-pine. The whole will cost a little over £600, but Lord Poltimore gave the whole of the local stone, and this has considerably reduced the cost. Mr. A. Lauder, of Barnstaple, was the architect, and Messrs. Saunders and Sons were the builders. The chapel will accommodate about 180 persons.

There has been added to the National Portrait Gallery a portrait of Sir John Glanvill, who was in 1638 appointed Recorder of Bristol, and elected to represent that city in Parliament. The portrait is a half-length, life-size. Across a very dark curtain is inscribed: "Serjeant Glanvill, Speaker of ye House of Commons, 1648."

Mr. W. H. Mitchell, architect, of Portland-street, Southampton, has been elected unopposed as a member for Nicholtown ward of the town council of that borough in succession to the late Jonas Nichols.

The members of the Monmouthshire Antiquarian Society held their annual meeting last week, when the ruins of Llanthony Abbey were visited, a paper being read in the abbey grounds by the Rev. Bagnall Oakley.

The east window of St. Mary's parish church, Frittenden, Kent, has been fitted with stained glass as a memorial. Messrs. Bucknall and Cooper, of Westminster, were the artists.

New-road Baptist Chapel, Bromsgrove, was re-opened last week after renovation and internal decoration from designs by Mr. C. M. Barber, of Hereford.

On Thursday week a new Wesleyan Centenary Chapel, at Heswall, Cheshire, was opened. The building provides accommodation for 325 adults, and consists of nave, transepts, and chancel, with minister's vestry and other conveniences at the rear. The style adopted is "Perpendicular" Gothic, and the buildings are faced externally with local red sandstone, rock-faced, in narrow courses. The total cost of the building, exclusive of seating, which has been transferred from the old chapel, is within £1,400, including heating and water supply. The contract has been carried out by Mr. John Shaw from the designs and under the superintendence of Mr. W. Thomas Cubbon, architect, of Birkenhead.

Upwey parish church, which has undergone renovation, was opened last week by the Bishop of Salisbury. A new floor of oak blocks laid upon concrete has been put down. The three galleries have been cleared away, and the church has been refurnished with oaken seats. The west window in the tower has been opened out, and also the tower arch, which had been completely hidden. Mr. Samuel Barnes, of Broadwey, is the builder, and the architect Mr. J. T. Micklethwaite, of Dean's-yard, Westminster. The cost of the work was £890.

Whilst four men, superintended by Mr. T. Varley, agent to Mrs. Roundill, of Gledstone, near Skipton, were engaged on Thursday afternoon in removing the props from a newly concreted roof in a stone-breaking shed on the estate at Gledstone, the roof suddenly gave way and came down with a crash. Mr. Varley had his thigh broken, and a labourer named Garness died from injuries sustained.

Building Intelligence.

Aston Ingham.—The parish church of As Ingham was reopened, after thorough restorati on Tuesday week, by the Bishop of Herefo The works have cost £1,500. Messrs. Nichol and Son, of Hereford, were the architects, Messrs. W. H. Smith and Co., of Weston-und Penyard, near Ross, the contractors. T church has been partially rebuilt. Both walls the nave and the chancel had to be pulled do and reconstructed, a new roof put on, the seati and flooring were defective, and demand renewal, and the tower has been repointed. T chancel arch has been raised by 3ft. 6in., and flooring, ceilings, and seating have been renew in oak throughout the whole edifice. The fl of the chancel has been laid with encaustic til from the works of Messrs. Godwin and S Lugwardine, and a new oaken pulpit, with th carved panels, has been erected upon a stone ba During the excavations in the chancel two st coffin-lids were taken up, and let into the wall either side of the altar.

Edinburgh.—Extensive alterations have b decided on at St. Mary's Roman Catholic Cath dral, Broughton-street, Edinburgh. Considera progress has been made with the work, and Saturday a foundation stone was laid by Arc bishop Smith. The side chapel recently destroy by fire, together with the vestry behind it, to be formed into a south aisle and new vest and a corresponding aisle will be constructed the side of the nave. The present side walls the main building are being removed, and th places taken by moulded columns with poin arches intervening for the support of the ro One effect of these alterations will be to dou the accommodation of the cathedral, and make capable of seating about 2,000 persons. It also contemplated at some future time to thr the present chapel-house into the main buildi so as to greatly extend the church rearwa from the present altar, and also to erect t massive square towers at the western Broughton-street end. The work in all w cost £9,000. The plans have been prepared Mr. John Biggar, architect, 8, Dryden-stre and the work now in progress will be finished November next.

Work has just been commenced on a R Volunteer Drill-hall in Bedford-circus, Exet Messrs. Tree and Bolley, of that city, are contractors.

In the course of the work now going on Peterborough Cathedral, the stone marking spot where Queen Catherine of Aragon is said have been buried has been removed, and under has been found a well-made brick vault w plastered sides. The vault was filled with ea and stones, and at the bottom was a leaden coff The coffin was left *in situ*, and no attempt w made to open it.

Considerable additions have just been made the modern stone reredos and its surroundings the chancel of St. Mary's Church, Penzance. T reredos has been extended the whole width of t sanctuary, and in the niches have been placed statues. The tiles which lined the sanctuary wa have been replaced with ashlar of polish alabaster, surmounted by a carved cornice. M Harry Hems, of Exeter, executed the work.

Mrs. Knowles, of Greenfield House, Hoyla Barnsley, wishing to present the town with a su able and permanent gift, got permission of t local authorities to add a tower to the public h and fix a large illuminated clock, with four 8 external dials, and a bell of 4cwt. The clock w set going on Saturday last, on what is hoped successful career. The necessary alterations to t structure have been carried out by Mr. Walter Sykes, architect, Hoyland, and the clock, which from the designs and plans of Lord Grimthor was made and fixed by Messrs. W. Potts and So of Guildford-street and Cookridge-street, Leeds.

St. Paul's Church, West Smethwick, which h recently undergone extensive alterations and r pairs, was reopened on Friday. The alteratio include the removal of the north gallery and t raising and reflooring of the chancel. A new windo has been opened out on the south side, and cho stalls have been erected. The west gallery has be reseated, a new heating apparatus has been pr vided, and the lighting arrangements have be improved. The repairs and extensions have be carried out by Messrs. J. Harley and Sons, Smet wick, from designs by Mr. T. H. Fleming, t diocesan architect. The cost has been about £1,3

TO CORRESPONDENTS.

do not hold ourselves responsible for the opinions of r correspondents. All communications should be awn up as briefly as possible, as there are many imants upon the space allotted to correspondents.]

is particularly requested that all drawings and all nunications respecting illustrations or literary matter ld be addressed to the EDITOR of the BUILDING s, 332, Strand, W.C., and not to members of the by name. Delay is not unfrequently otherwise ed. All drawings and other communications are at contributors' risks, and the Editor will not rtake to pay for, or be liable for, unsought contribu-s.

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dvertisements for the current week must reach the e not later than 3 p.m. on Thursday. Front-page rtisements and alterations in serial advertisements t reach the office by Tuesday Morning to secure inser-

NOTICE.

nd volumes should be ordered early (price Twelve illings each), as only a limited number are done . A few bound volumes of Vols. XLI., XLIX., L., LII., LIII., LIV., LVI., LVII. LVIII., and LIX. may ll be had, price Twelve Shillings; all the other bound lumes are out of print. Most of the back numbers former volumes are, however, to be had singly. ubscribers requiring any back numbers to complete lume just ended should order at once, as many of em soon run out of print.

. (Yes, we saw it. But nobody minds "Granny"; ast of all, we expect, the "Braves Belges." The old dy was very sore last week—a week behind the fair, usual!)

EIVED.—W. and Co.—St. P. I. Co.—F. A.—J. B.—. W. H.—H. B. Co.—S. B.—A. P. Co.—G. J.—. H. S. and Co.—B. of H.—T. P. and Son.—B. of S. E. and Co. (Ltd.)'—A. H. T. and Co.—J. H. and Co. . H. E. and Co.—D. and E.—M. R. Co.—L. and Co.—and Co.—J. A. W.—B. of L.—B. H. and Co.—H. L. D. and Co.—B. of I.—C. W.—G. and P.

Intercommunication.

QUESTIONS.

0604.]—**Weights and Measures.**—My son ts to pass an examination in the Weights and sures Act of 1889, for the purpose of getting a situa-as inspector. Will anyone kindly let me know what examination is, and where the examination is held?—. TAILER.

0605.]—**Central-Hung Sashes.**—Is there any of making a central hung sash to remain at any le it may be opened at, with the line now used?—T. NING.

0606.]—**Lych-Gate.**—Would some authority inform bscriber what is the correct width of a lych-gate, and size and height of the centre frame to support the n? Should the gates be made to open both ways?—QUIRER.

REPLIES.

0599.]—**Hot-water Engineering.**—Replying to . C. B.," there is no objection to taking the cold ply into the primary return, except that, as a rule, it ld require a little more pipe. No gain would be cted. There would really be a slight disadvantage erienced, though too intricate to be explained here, not worth taking into consideration.—THE WRITER THE ARTICLES.

t the Godalming County Court on Thursday, ore his Honour Judge Lushington, Joseph rson Fitzgerald, lately carrying on business as a lder, and formerly for thirty years a timber rchant in London and Woking, applied for his charge. Mr. A. Mackintosh (the Official Re-ver) stated that the deficiency amounted to 391. Bankrupt's discharge was suspended for months.

LEGAL INTELLIGENCE.

ARBITRATION CASE. — NEWELL v. LIVERPOOL CORPORATION.—Sir John Coode forwarded on Tuesday to the City Council of Liverpool his award in the Mersey Aqueduct case. Messrs. Monk and Newell's tender for constructing the aqueduct tunnel under the Mersey at Fidler's Ferry, to convey the new water supply from Lake Vyrnwy to Liverpool, was accepted, and the work proceeded. Disagreements arose between the contractors and the Liverpool Corporation engineer, Mr. G. F. Deacon, which caused the stoppage of the work, and for the work executed by Messrs. Monk and Newell they made a demand, upon which Sir J. Coode was appointed arbitrator. After hearing evidence for sixteen days he has awarded Messrs. Monk and Newell £14,423 10s. in addition to judgment in their favour on the counter-claim of the Liverpool Corporation for penalties alleged to be due under the contract, and for the cost of completing the tunnel. Each party is adjudged to pay his own costs of reference, and half the arbitrator's charges and costs, which latter amount to £953. The defendant's counter-claim was for penalties alleged to be due under the contract, and for the cost of the completion of the tunnel by Messrs. Cochrane and Sons, which cost the Corporation will now have to pay.

CONDITIONS GOVERNING SALES AFTER AUCTIONS.—In the Lord Mayor's Court, on the 7th inst., the case of "Price *v.* Bagg" was tried before the Assistant Judge (Mr. Roxburgh) and a jury. The plaintiffs, Messrs. Price and Hughes, timber merchants, of 27, Clement's-lane, E.C., sued the defendants, Messrs. Bagg and Frampton, dealers in builders' materials at Bournemouth and Weymouth, to recover £39 14s. 1d., being the loss on re-sale in a parcel of timber, which the plaintiffs alleged the defendants had bought at an auction, and which they refused to take. The defendants pleaded never indebted. Mr. Churchill, of the firm of Churchill and Sirum, timber brokers, of 27, Clement's-lane, said that on 28th January he held a sale of timber at the Baltic Sale Rooms. Mr. Frampton, a member of the defendant's firm, attended and bid for several lots, buying several. At the end of the sale Mr. Frampton came up to the desk where witness was sitting and inquired about lot 241, which was "992 12ft. bright yellow deals, second quality," and bought it at the reserve price. At the same time that Mr. Frampton bought lot 241 he also bought lot 426, and he also made offers for other lots. But he stipulated that he should give bills at six months in payment. The plaintiffs refused this offer, and so the sale was not completed. The defendants, however, took delivery of and paid for lot 426. Lot 241 was subsequently put up for auction, and realised a sum less by the claim in the present action. Mr. Churchill, cross-examined, said that lots 241 and 426 were bought as one bargain, and not different bargains. Mr. A. T. Frampton, one of the defendants, said that at the sale he purchased several lots in open bidding, and these he had paid for; but after the sale he went to Mr. Churchill at his desk and asked the reserve prices of lots 241 and 426. He was told, and he bought lot 426, and he had paid for it. Lot 241 exceeded £100, and he told Mr. Churchill that he was willing to purchase that lot on condition that he could draw on the vendors at six months. This he found he was unable to do, and so he would not buy. The purchase was an entirely distinct bargain to the purchase of lot 426. Mr. Gosling, manager of the defendants, corroborated. The jury found for the defendants. The learned judge said that it was a curious coincidence that the case on which he had decided the point of law in the case—namely, that an auctioneer could not bind a buyer after the sale, was tried in 1885; it was a timber sale, and the defendant's name was Churchill.

NO DEFINITE CONTRACT.—HILL v. STEPHENS.—This action, tried before Mr. Justice Hawkins at the Sussex Assizes on the 10th inst., was brought by Mr. Charles Hill, a builder, of 29, Gerard-street, Brighton, against Mr. George Stephens, of 103, Ditchling Rise, to recover £274 9s. 2d., for work and materials supplied, and the defendant put in a counter claim for £200. The amount claimed was the balance of an account for work done and materials supplied in building two houses. The defence was that it was agreed that the houses should be built for £300, and in the alternative that the plaintiff's charges were excessive. The defendant also alleged that the houses were not built in a workmanlike manner, and were unfit for habitation, and that for this reason they were unlet for some time, and for this the defendant claimed £200. Evidence was given by the plaintiff, and on his behalf by men engaged on the works, Mr. William Parnacott, surveyor, Mr. S. Holloway, builder, and Mr. Mabson, assistant borough surveyor. The jury found that there was no contract, and the foreman said they felt there had been a misunderstanding. Judgment was given for the plaintiff upon this point, and the question of value then arose, and it was decided to refer this to an arbitrator, together with the claim by the defendant for damages on account of alleged unnecessary delay.

COMPENSATION CASE.—At the Surveyors' Institution, on Friday, the property compensation case of "Bates v. Shortlands and Nunhead Railway" was heard before Mr. R. C. Driver, surveyor. Mr. Joseph Bates, as a keeper of dining-rooms, of North-quadrant, Brighton, claimed £1,810 compensation for his freehold interest in a piece of freehold land, well timbered, at Catford, on part of which only, a house can be built, "so that there would be about three acres of ornamental accommodation ground attached, rendering the property in such a position especially attractive." The freehold interest was subject to a lease of the land to Mr. C. Storey, builder, of Lewisham, for 99 years, from Michaelmas, 1888, at £55 per annum rent, with right of acquir-the freehold for £1,100. The claim was made up as follows: for the freehold, £1,100; ten per cent. compulsory purchase, £110; surveyor's charges, &c., £600; total, £1,810. The proceedings were confined to the three acres taken by the company, leaving the remainder of the property and the question of damages to form the subject of further proceedings. Mr. Howard, valuer, for the claimant, said that as compensation he would give £600, including 10 per cent for compulsory sale, they had the total of £660. Mr. R. Reid and Mr. Arthur Skitt, auctioneer and surveyor, both agreed with this valuation. For the company, Mr. Samuel Walker, F.S.I., considered £5 per acre a fair price for land in the neighbourhood of the property. He would give for the three acres £15 per year, with 20 years' purchase, making £200. Mr. Arthur Garrard, F.S.I., agreed with this valuation. The land in the neighbourhood, through overbuilding, had considerably deteriorated in value. The Arbitrator reserved his award.

EMPLOYERS' LIABILITY CASE.—An action was brought in the Liverpool County Court on Monday, under the Employers' Liability Act, by James Somerville, a bricksetter's labourer, of Liverpool, against Messrs. James Thornton and Sons, builders and contractors, in Liverpool, to recover compensation for injuries sustained through negligence. The claim arose out of operations at the old Theatre Royal, Williamson-square, which was being converted into a cold storage establishment. The plaintiff's case was that he was engaged in January last in helping in the raising of an iron column on the second floor of the building. A foreman directed the plaintiff and another man to use a lever to move the column. They did so, and the extra strain coming upon the chain, it broke. The column fell and broke the plaintiff's leg and inflicted other injuries. He claimed £192.—The jury gave a verdict for the plaintiff for £100.

IN RE R. COSSLETT, JUN.—At the Bristol Bankruptcy Court, on Friday, the examination took place of Richard Cosslett, the younger, of Westminster Villas, Lower Weston, Bath, builder, lime burner, and contractor. The statement showed liabilities to unsecured creditors £1,269 14s. 11d., creditors fully secured £8,969, creditors partly secured £4,160, of which £3,668 was estimated to rank for dividend. The available assets were £80 16s. 11d., leaving a deficiency of £4,848 18s. The alleged causes of failure were "stoppage of a portion of his works by injunction 18 months ago, which in effect stopped the whole; great expense through litigation, and great depreciation of property in Clifton." The Official Receiver reported that the debtor, who has not been in business for some 18 months past, commenced on his own account as a builder and contractor 21 years ago with a capital of £2,000, being his share of a partnership business previously carried on with his father. He had also carried on the business of a lime burner and brick and tile manufacturer. He appears to have been engaged in expensive litigation, as he alleges, in protecting his property and business. The available assets compared with the amount of liabilities are practically nil. The debtor has, however, a life interest on the death of his wife in her property, originally estimated to be about £2,950. The value of which, if anything, must be very small. The books are not well kept.—No offer was made.

CONTRACTOR'S LIABILITY FOR QUANTITY SURVEYOR'S FEES.—The plaintiff, Mr. D. H. North, a surveyor, practising in the City, sued the defendant, Mr. W. Bassett, a builder, in the City Commissioners' Court, on Friday, to recover £26 5s. for services rendered as a quantity surveyor in respect of a contract which the defendant entered into to build Holywell House, Streatham. The plaintiff was instructed by Mr. Grosvenor, the architect of Holywell House, and the son of the building owner, to take out the quantities for the building. The defendant was the builder who successfully tendered for building the house, and it was contended that that being so, he was liable to pay the plaintiff's charges of 25 guineas for taking out the quantities, as the amount claimed had been included in the tender. By the custom of the trade, the architect had implied authority from the builder to instruct a surveyor to take out quantities, as a builder could not tender without having the quantities taken out. The defence was that the amount had been paid to the architect, Mr. Grosvenor. In the result, the

Judge non-suited the plaintiff on the ground that there was no privity of contract, and leave to appeal was given.

WATER SUPPLY AND SANITARY MATTERS.

Edinburgh and District Water Supply.—The consulting engineers, Messrs. Gale, Hill, and Mansergh, have recommended the Manor district as that to which the Water Trustees for Edinburgh and Leith should look as a new source of water supply. The report has not yet been printed, but the engineers have very considerably increased the estimate of £664,000 for 15,000,000 gallons per day from the Manor, which was given by Messrs. Leslie and Reid in 1890. It is suggested that the scheme should be proceeded with in two instalments. Under the first half the supply would be increased by 10,000,000 gallons, and under the second half by an additional 5,000,000 gallons. The opinion of the Town Councils of Edinburgh, Leith, and Portobello will be taken as to the propriety of proceeding in the next session of Parliament with the scheme.

Kilham, Driffield.—At the meeting of the Driffield Rural Sanitary Authority on Friday, the efficiency of the sewerage system of the village of Kilham, just completed at a cost of some £1,500, by Mr. Mather, of Hull, from plans by Messrs. Oldham and Bohn, of that place, was again under discussion, Mr. Bohn having sent in his final certificate. A letter was read containing various resolutions passed at a parish meeting in the vestry at Kilham on the previous day, condemning the scheme. For months past, the parish—or some portion of it—has been against the manner in which the scheme has been carried out; and a Government Inspector has been down and held an inquiry, and reported that there was no fault to be found with the work. Mr. Bohn wrote explaining many matters; but in deference to the wishes of the parish, the payment of the final certificate was held over.

At a sitting of the London Consistory Court held on Tuesday, Dr. Tristram, the Chancellor, decreed faculties for enlarging All Saints' Church, Knightsbridge, by 200 sittings, at an estimated cost of £4,000, and for alterations to St. Jude's Church, Gray's Inn-road, at a cost of £500.

In the case of Martin George Deavin, of Ivydale-road, Nunhead, late of New-road, Rotherhithe, Rushey-green, Catford, and Dundas-road, Peckham, auctioneer's clerk, formerly auctioneer and builder, now out of business, the registrar of the London Bankruptcy Court has suspended the discharge for two years.

At the Liberal Club, Newcastle-on-Tyne, on Tuesday, the Countess of Carlisle unveiled a portrait of Mr. Gladstone, which had been painted and presented to the club by Mr. J. W. Brown.

George May, a navvy engaged on the Tottenham and Forest-gate Railway, now in course of construction by Messss. Lucas and Aird, was charged, at the Stratford Petty Sessions on Tuesday, with assaulting and intimidating two fellow workmen, because they would not join in a strike. The prisoner was remanded.

New Board schools for 400 children are about to be built at Foleshill, Warwickshire, from plans by Mr. T. F. Tickner, M.S.A., of Bishop-street, Coventry. The buildings will be of plain red brick, with moulded dressings and Broseley tiles for roofing.

Out of 48 candidates who sent in their applications for the post of surveyor, the Court of the Company of Skinners have appointed Mr. W. Camphen Jones, A.R.I.B.A., 32, Bedford-row, W.C.

The Council of the British Association held its annual meeting on Wednesday, when a committee recommended that steps should be taken to bring the Ordnance maps of the British Islands up to date, and to make them more accessible to the public. Sir D. Galton announced, before the close of the meeting, that some new arrangement would be made in regard to the sale of these maps.

The death of Mr. Henry Pooley, the town chamberlain and borough surveyor of Wisbech, took place last week. He was 73 years of age, and was appointed to the offices in Feb., 1876. He was at one time associated with Mr. Chapple, of Holbeach, builder, and was his clerk of works during the erection of Ely-place Baptist Chapel at Wisbech. The sewerage of the town, and many other important public improvements, have been carried out during his term of office.

A memorial church is about to be erected at Highfield, near Wigan, from plans by Messrs. Paley, Austin, and Paley, of Lancaster.

The cope chest at Salisbury Cathedral, which is said to be coeval with the building, has recently been placed in the north aisle of the choir, where it is seen to great advantage.

Our Office Table.

The *Times* of Saturday published an extraordinary letter from a Mr. George H. Jaques, of Herne-hill, urging that in place of completing the Museum buildings at South Kensington from Mr. Aston Webb's designs, the old scheme prepared by the late Major-General Scott, C.B., a large portion of which has been carried out, should be adopted. This scheme, which is illustrated by the well-known model in the museum, is, Mr. Jaques says, with an unconscious touch of sarcastic humour, "in more striking contrast" to Mr. Waterhouse's work at the Natural History Museum than is that of Mr. Aston Webb. Precisely so.

A rather curious action against the Leominster town council was brought by a confectioner to recover damages for detention of plans which had been submitted to the authority under the usual by-laws requiring a deposit of the plans of a contemplated building. His Honour, the judge of the county court, decided that the plans are not the property of the authority, and they had no right to detain them, and after hearing evidence his honour said he thought the plans ought to be returned to the builder for the purpose of carrying out the building and making copies and all that is necessary, and that they should be submitted to the surveyor at all reasonable times for his inspection of the building, and that on completion they should be again returned and deposited with the authority. The judge further said the authority should retain the plans 14 days, and refused application for appeal. This ruling will be thankfully received by architects and builders who are too busy or lazy to make copies; but urban sanitary authorities will be naturally staggered at a decision which makes the by-law on that behalf of no effect, and repudiates the power conferred on authorities to detain plans deposited.

At the opening of the Socialist Congress at Brussels, on Monday, it was announced that Mr. Burton, from London, was in attendance, not as a delegate, but in order to appeal to the Congress for sympathy on behalf of the London carpenters and joiners whom he represented, and who were now on strike. It was unanimously resolved that Mr. Burton should be permitted to remain, and that as the London carpenters and joiners had struck for shorter hours, he should be allowed to speak when the eight-hours question came on for discussion. This opportunity to address the Congress came on Tuesday morning, when Mr. Burton lucidly explained the circumstances connected with the present dispute, adding that it would materially assist the United Trades Committee if Continental workmen refrained from crossing the Channel to fill the places of those on strike. These remarks, on being translated, were cordially received, and a sub-committee was directed to consider the subject, and send, if possible, some small pecuniary aid to the committee as a token of goodwill.

Wood pulp is now extensively used as a composition for mouldings and decorative purposes in private and public buildings. In the manipulation of this composition, good effects can be obtained by mixing in it the various aniline colours—strong or tinted—or those known as metallic colours. Bronze powders of various colours may also be used with pleasing results. By the use of this material all the better qualities of fine-grained wood are obtained without any of the drawbacks of shrinking or expanding on account of atmospheric conditions, says the Pittsburgh *Dispatch*. The inroads on the forests of the United States, which the growing consumption for railway ties, building, and the requirements of the press involve, are enormous. So serious has this matter become, that, unless each State passes a law for the encouragement of tree-planting, so that the woods can be replenished, there will soon be a tree famine. As giving an inkling of the magnitude of the general consumption of wood pulp, a correspondent states that for a single edition of an American daily paper, 17 tons of blank paper was recently required. This was the product of 67 cords of poplar. In 22 hours from the time of felling the trees it had been turned into printed sheets.

Mr. T. W. Millard, of Rugby, has been elected surveyor to the Rugby rural sanitary authority.

CHIPS.

At Nordenhamm, in the Grand Duchy of Old[enburg], on Wednesday, a temporary scaffold[ing] erected in connection with the building of a [new] pier and landing stage for the Norddeutscher Ll[oyd] Steamship Company, collapsed without warn[ing]. About fifty workmen were on the structure, [the] loading material to be used in the construction [of] the pier, and many fell into the water. Ten [were] drowned, and nine sustained severe injuries by [the] fall. One of the injured has since succumbed.

Mr. Adams Acton's bronze statue of John Wes[ley] has been placed on the pedestal of granite erected [at] the entrance to City-road Chapel. The for[mal] reopening of the restored chapel will take pla[ce] fortnight hence.

At the National Welsh Eisteddfod at Swans[ea] on Wednesday, Mr. H. Wall, of Newport, [was] awarded a gold medal and first prize for p[ier] wood-carving in oak, and a cheque for ten gui[neas] and a silver medal for the best carved oak Ba[rd's] chair were secured by Mr. W. T. Morgan [of] Swansea.

Mr. R. C. Reid, C.E., Edinburgh, has repo[rted] that the South Harbour-street wall, Ayr, has fa[llen] through its own inherent weakness, and from [the] fact that the foundation has been rendered inse[cure] by the scouring action of the river, and, furt[her] that this scouring action is in a great measure [due] to the artificial deepening of Ayr Harbour. [Mr.] Reid recommends a new wall, to be founded on [the] shale or blaise under the clay, about 5ft. below [the] water. The cost would be £1,200.

The Corporation of London have recen[tly] entirely remodelled and renewed the drain[age] system at the Freeman's Orphan School at Brix[ton], where 200 children are boarded and educa[ted]. After a death from diphtheria, the sanitary auth[or]ities of Lambeth and the City surveyor (Mr. [W.] Murray) examined the drainage, the result be[ing] the decision that the system which had existed [for] 40 years was not only entirely out of date, bu[t] incomplete and inefficient as to constitute a ser[ious] source of danger to those living in the school. 'Th[e] whole of the drains have been removed and [new] drains carried outside the building; these ha[ve] been laid in concrete, and tested length by leng[th], besides being ventilated and cut off from direct co[m]munication with the public sewers.

The foundation stone has been laid of the [new] sick hospital for Dundee, about to be built [from] designs by Mr. Alexander, of that city.

The church at Marr, near Doncaster, was re[-] opened on Friday after restoration. The work [has] been carried out under the direction of Mr. J. [C.] Hodgson Fowler, F.S.A., of Durham, and the [cost] has been about £800. A new open-timbered [roof] has been placed over the nave, and a waggon-h[ead] timbered roof over the chancel. The west [end] gallery has been removed, and the space under[neath] tower opened out and a screen erected, formin[g] bell chamber and vestry. The nave has been re-seated throughout, and the flagging renewed. [The] choir stalls have also been fixed.

Mr. Holman Hunt has decided to accept the [sum] of £3,580 for his picture, "The Triumph of [the] Innocents." Of this amount £1,500 is paid by [the] Corporation, and £2,080 is subscribed by admir[ers] of the artist in Liverpool. The picture will now be placed in the permanent collection at the Wa[ker] Art Gallery.

The memorial stones of a new Primitive Metho[dist] chapel and school at Burton-road, Withington, [were] laid on Saturday. The buildings, which have [been] designed by Mr. Joseph Swarbrick, of Manche[ster], are to be of red brick, faced with Ruabon brick [and] terracotta. They will be in the Early English s[tyle]. The chapel will have accommodation for 300 pe[ople], and the school will provide room for 100 childr[en]. The cost will be about £1,700.

Local Government Board inquiries were held at Plymouth, under the supervision of Mr. J. T. Jr[i]rison, M.Inst.C.E., on Tuesday and Wednesda[y] at the Guildhall. On Tuesday the inquiry had re[fe]rence to the application of the town council of Ply[mouth] for sanction to borrow £56,000 for works of sewerage, £3,000 for work of street improvement, and £583 for the erection of a shelter on the Recreation ground. On Wednesday the applicat[ion] of the councils of Plymouth and Devonport and Stonehouse Local Board for the borrowing of £7,00[0] to form Deadlake into a recreation ground were considered.

Holloway's Ointment.—Go where you [may], persons will be found who have a ready word of praise for this [oint]ment. For chaps, chafes, scalds, bruises, and sprains, it [is an] invaluable remedy; for bad legs, bad breasts, and piles, it [may be] confidently relied upon for effecting a sound and permanent cu[re].

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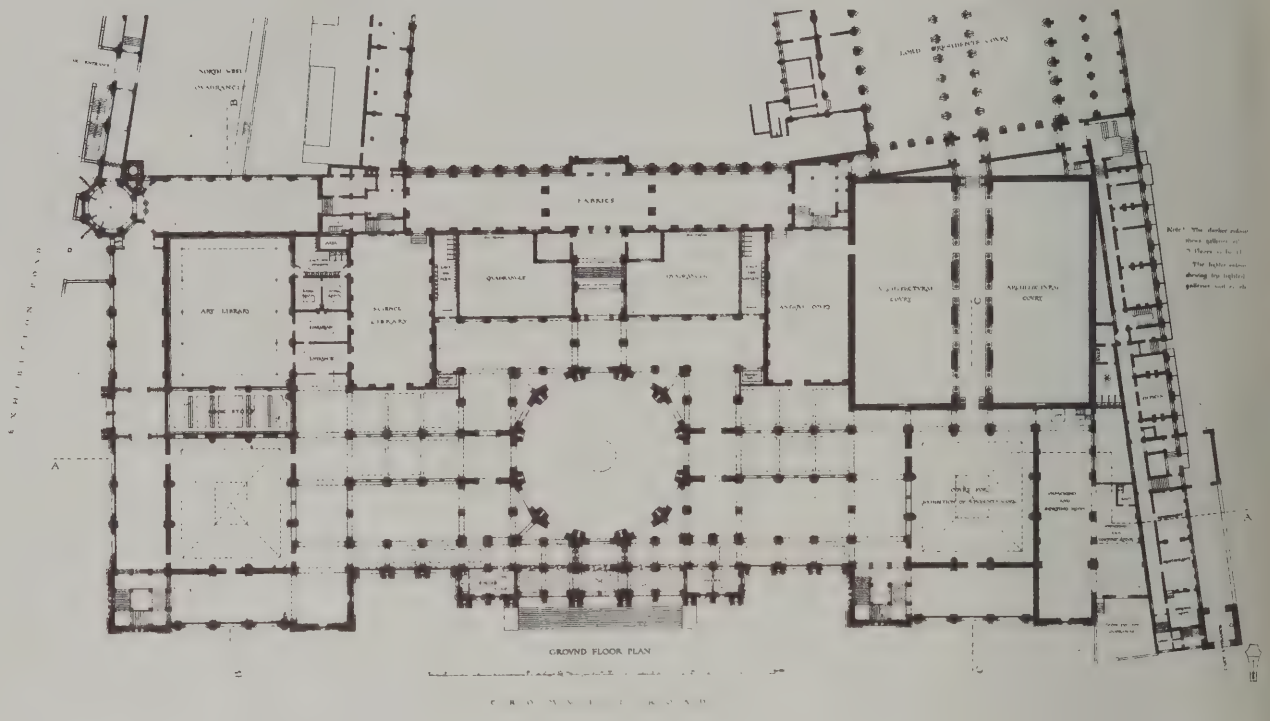

NONUPTON NEAR LUDLOW



Architectural Association Excursion in Shropshire 1891

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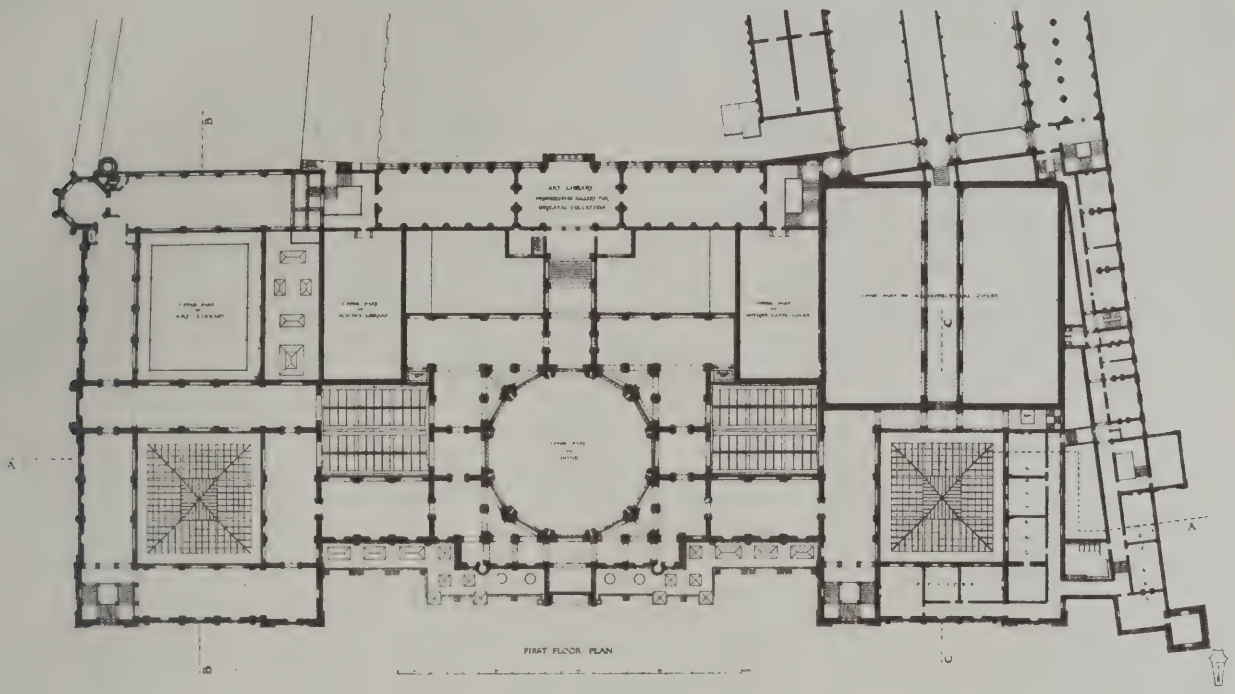
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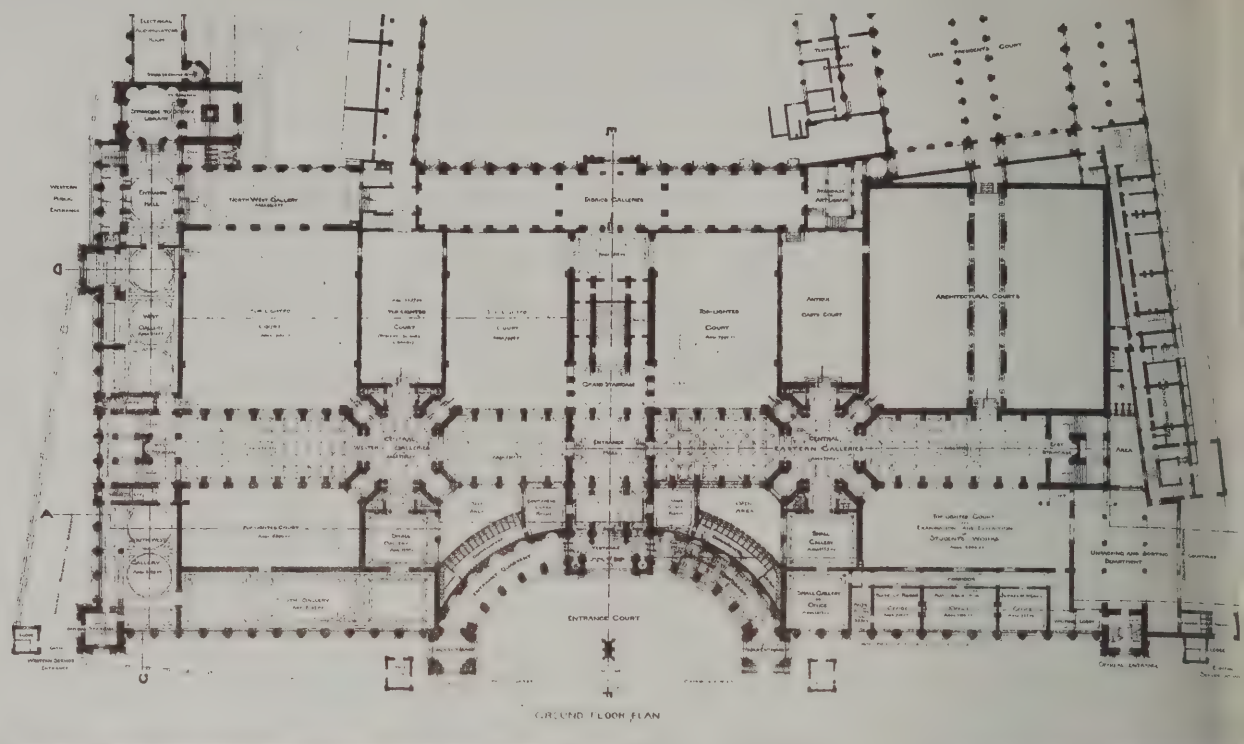




"PHOTO-TINT" by James Akerman, 6, Queen Square, London, W.C.

EUM COMPETITION,

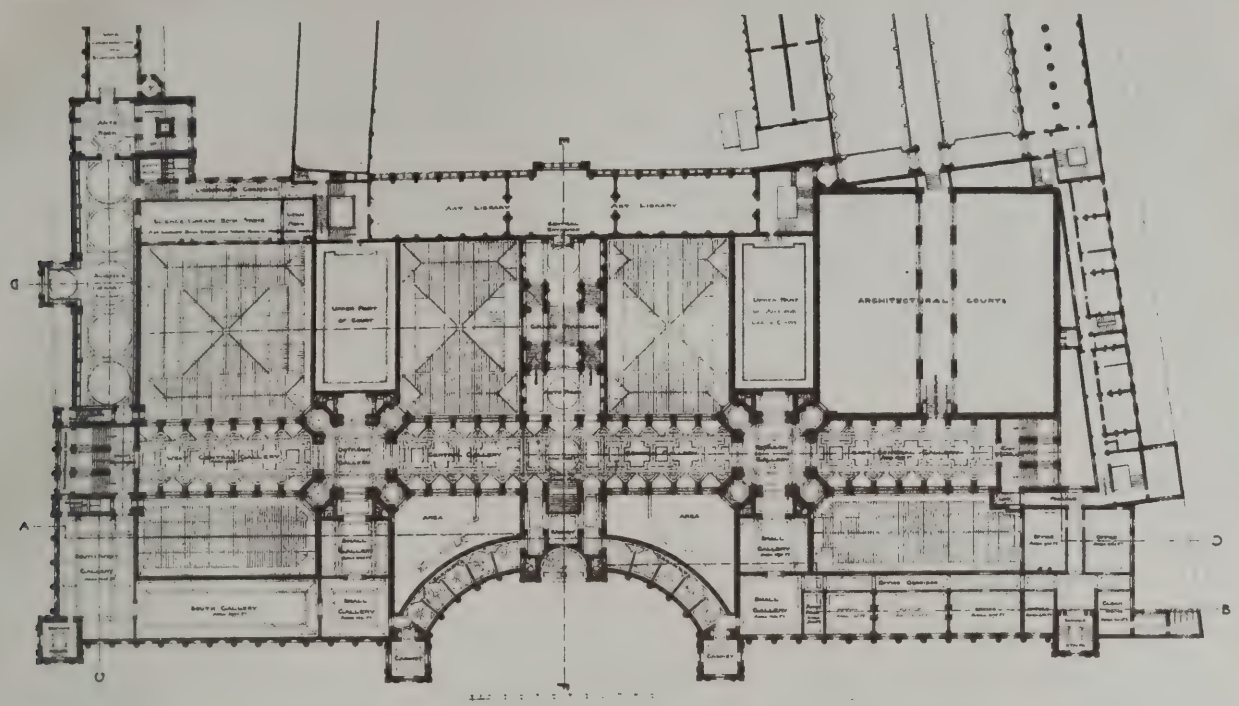
R.I.B.A. ARCHITECT.



GROUND FLOOR PLAN



SOUTH KENSINGTON MUSEUM COMP



FIRST FLOOR PLAN



"PHOTO-TINT," by James Akerman, 6, Queen Square, London, W.C

, DESIGN BY JOHN BELCHER, F.R.I.B.A. ARCHITECT.

A DISUSED CONFESSIONAL
BRUGES CATHEDRAL E.G.D.

Confessional

DETAIL OF PIERCED PANEL

BRUGES

SEAT

BENCH · S. GILES BRUGES

Small pots all 2½ turned

4" turned seat pots

TOP RAIL

TOPS

E.G.D.

CARVED PANEL

LOCK & KEY PLATES A·B·C·D·

WROUGHT IRON NUMBERS FROM ANVERS & BRUGES

ALL BRICK

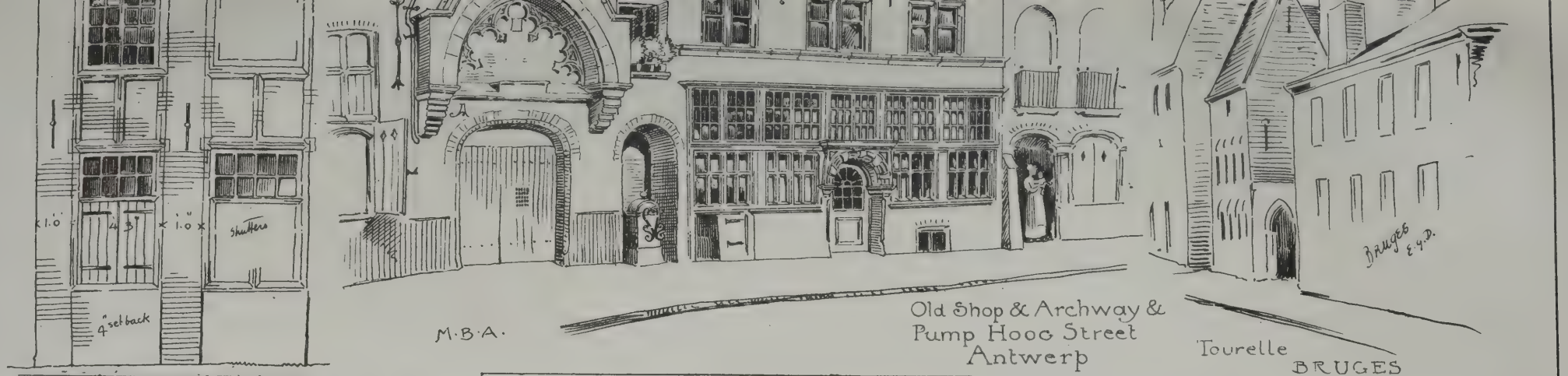
FRONT AT BRUGES

E.G.D.

Cornice

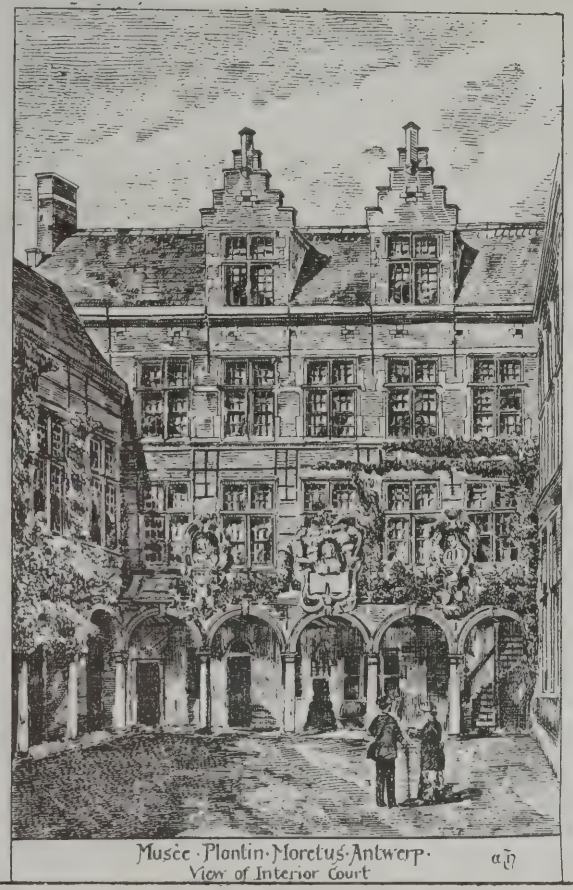
Corbel at A

FACE OF ARCH



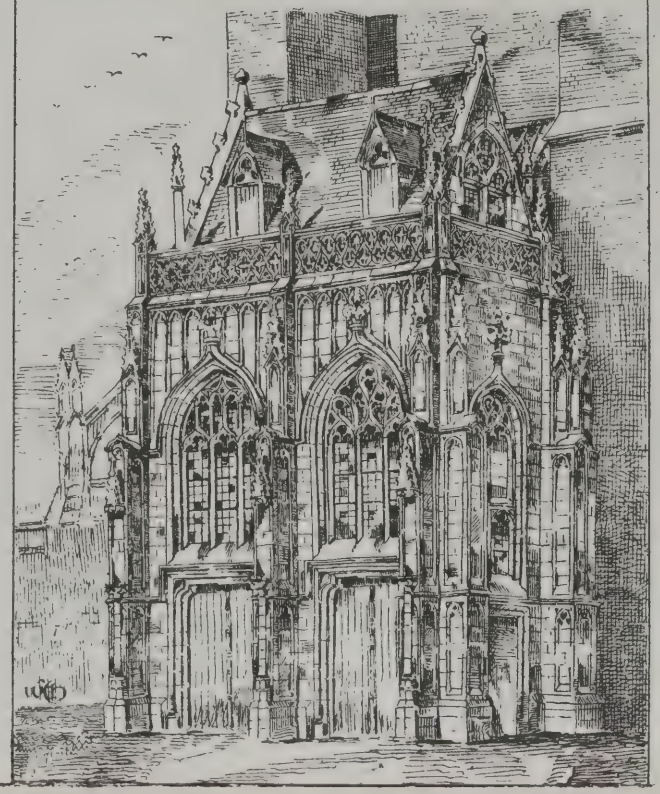
Old Shop & Archway &
Pump Hooc Street
Antwerp

Tourelle
BRUGES



Musée · Plantin · Moretus · Antwerp ·
View of Interior Court

: Baptistery, Notre Dame, Bruges :



Couvent des Carolites:
Malines.



Photographed & Printed by James Akerman, 8 Queen St Place, W.C.

Sketches from BELGIUM by E. Guy Dawber, W. H. Thorp & Maurice B. Adams

E BUILDING NEWS
ND ENGINEERING JOURNAL.
VOL. LXI.—No. 1912.
FRIDAY, AUGUST 28, 1891.

LOCAL AUTHORITIES AND ARCHITECTS.

D-TAPEISM, or official ceremoniousness, useful as it is in the conduct of e business, yet sometimes defeats its nds. In building operations as carried our larger boroughs, formalities and ctions have rather engendered ill-feeling nodes of evading the law, than assisted s observance. A good deal of this on and lack of cordiality between rities and builders may be traced to ersonal equation. Arbitrary and overng officials may make the machinery of nistration so hard to work that a great lubricants, in the shape of bribes or , have to be resorted to, as we have in the case of more than one public

Again, other men appear to resent kick" against order and routine of kind, and to imagine that public s and formalities are created to bestow rs rather than to facilitate business. egularity and ceremony are to them tionable and irksome. Between these lasses of persons hindrances cannot fail se. The personal equation may include ier kind of drawback to easy adminisn of the law—we mean the installation ower of officials who prefer to stand on tter of their authority than to adopt the of the statute. Take, for example, two ree of the by-laws in force in the polis and in many provincial towns. A w under the Amendment Act of 1878 des that the site of a building shall be d of all fæcal, animal, or vegetable r or refuse, and the excavation filled up hard brick or dry rubbish. A district yor may enforce all that is laid down in liance with this rule, and yet allow a ing to be erected over a disused cesspool ain. Till the by-law lately passed was in tion, builders could fill up any excavanear with rubbish, or allow it to remain

Again, while every care is seemingly to prevent the rising of impure subir into the building, the Metropolitan ws allow a house to be built on a swamp egnated with moisture. Thus, while elling a building owner to comply with tter—as, for example, excavating dry e which has become inert for harm—he nevertheless omit to do that which is important to the health of the inmates. imperfection of the by-laws in not ding for the drainage of the site is less to be remedied. The rule which res a layer of concrete over a site which of gravel or a virgin soil is practically tle avail, because it often happens that of gravel or natural virgin soil is even dangerous than one that has been up with dry rubbish. With the politan area, ventilation beneath the t floor is not compulsory; no by- is in operation requiring a dampmaterial or a lining of asphalte to outside of a wall from the dampe to the basement floor, yet these necessities which are more likely e ignored when the mere letter thority is enforced. Many other better s than those specifically laid down t be adopted with the concurrence of istrict surveyor in particular cases, but es not trouble himself with suggesting or better plans. Under the Public h Act, the by-laws in force are often nistered by officials who are very unng, and who demand a literal compliance, according to their own ideas of the law; they have strong prejudices against modes of construction, which, though permissible, are not usual, as, for instance, half-timbering, the employment of concrete and terracotta, dry areas, and other means of excluding damp. But the discretionary powers vested in the authorities are seldom used by officials of the stamp we are discussing; on which account it is more necessary that the by-laws should be sufficiently comprehensive to meet various circumstances, than that discretionary powers should be capriciously exercised. The model by-laws, as revised and in operation at Manchester and other large towns, are, happily, more perfect and comprehensive than those of the Metropolis. They have made it more difficult to evade necessary precautions, at the same time they are less irksome and exacting than rules which were framed upon imperfect data, and administered by arbitrary officials. While in the Metropolis a builder can erect a house upon a damp, low site, that has been covered with a layer of concrete, and build solid, permeable walls to his basement, in the provincial town the subsoil has to be drained, the site elevated if necessary, also in every case covered with a layer of concrete or asphalte; the space under the lowest floor has to be ventilated, and the external basement-walls built with a cavity; the model by-laws also fix a minimum of area for light and air, regulated by the size and height of house. These are rules which are enforced with undoubted advantage to builders, and which no architect will question. Thus, in the new Manchester By-laws, it is provided that in the erection of every new dwelling-house a distance of 36ft. at the least shall be provided free from any erection except a porch or portico, between its front and the opposite side of street; and that in the rear of any house a space must be left of not less than 150ft. square, free from any erection, such space to extend the whole width of the house, and to be not less in depth than 10ft. in any case, but to be controlled by the height of house, the lower houses having a distance to the adjoining boundary equal to their height. No room other than those in the roof is to of less height than 9ft., and the scantlings of joists, rafters, and purlins are prescribed. A great deal of extra labour is imposed upon the local surveyor, whose power of using his discretion in some cases becomes absolutely necessary to the satisfactory administration of the law.

Amongst the powers vested in local urban authorities is that of the right to retain plans of buildings about to be erected. Many of the provincial by-laws in force have a clause which enacts that "Every person who shall intend to erect a building shall give notice in writing to the Corporation of such intention, to be delivered or sent to the Borough Surveyor at his office, and shall deliver or send at the same time complete plans and sections of every floor of such building, which shall be drawn to a scale of not less than 1in. to every 8ft., and shall show the position, form, and dimension of the several parts of such building, and of every water-closet, earth-closet, privy, ashpit, and all other appurtenances." He is also at the same time required to deliver a description of the materials to be used, and of the mode of drainage and means of water supply; a block-plan to a scale of 1in. to 44ft., showing width and levels of the streets or land adjoining, showing the lines of drainage and the size, depth, and inclination of the drains. These drawings are deposited with the surveyor of the authority for the purpose not only of informing the latter of the kind of building contemplated, and of obtaining their sanction, but also to enable the surveyor to see that the building is being carried out according to the plans. For this object it is necessary that the plans should be retained by the authority—at least, so long as the building is in progress; but a decision given by the Leominster County Court Judge has declared that an urban sanitary authority has "no right to detain them as their property." The question before the court was: whether an authority had the right to detain plans submitted to them as their property, or merely to approve them and see if they were carried out? On their side it was argued that the authority could not exercise their powers of seeing the building carried out in compliance with the plans approved if they had to be given up; that the usual practice was for two copies of the plans to be made, one to be deposited with the authority, and the other to be kept by the builder, and that in the case of "Gooding v. the Ealing Local Board," tried before Mr. Justice Mathews in 1884, it was ruled that the authority had the right to detain the plans even though the plans were not approved, and there were no by-laws. On the other side, it was contended for the plaintiff that the architect having only made one set of plans, and these being retained, it was impossible to proceed with the work; further, that the by-laws did not give the authority power to retain the plans; and in reference to the case cited it was pointed out that although there was no by-law, there was an undertaking entered into by the builder to deposit all plans with the authority, whereas there was no such contract with the Leominster Corporation. Again, it was asserted that the by-laws were made under a statute that had been repealed. The Judge decided that the plans should be returned to the builder within three days, for the purpose of carrying out the building and making copies; that they should be submitted to the surveyor of the authority at all reasonable times for his inspection of the building; and that when it was completed they should be returned and deposited with the authority.

Only one copy of plans was made in this case—a very unusual circumstance; but the decision, if it is accepted as a precedent, is to the effect that the plans are to be left for the purpose of obtaining the approval of the authority, and not of becoming their property. But the Leominster by-laws are not very explicit: "Leave, or cause to be left," can hardly mean that the plans are to be deposited as the property of the authority, and, until the clause is so recast as to clearly express that the plans deposited are intended to become their property, it can hardly be surprising to hear of such misapprehensions. Authorities and architects and builders will take a timely warning by this decision: the first, to make their by-law clear, and the second, that two copies of plans ought always to be made—one for deposit, and the other for use. It seems surprising that any builder should have mistaken the intention of a by-law so generally understood, and have deposited the only set of plans with the authority. They had given consent to the builder to make copies at the office, but he had not availed himself of it. The decision, too, appears contradictory: the plans are, according to the judge, not the property of the authority, though the order he makes is that they are to be returned to them after the building is finished. Of what good are the plans to an authority after they have been carried into execution? Many local authorities will be surprised at the ruling; on the other hand, there are some in the profession to whom it will be welcome. The deposit of plans of buildings with local authorities has never been very favourably entertained. Some record is necessary, however, for the use of the surveyor, and we cannot see how the by-laws can be carried out unless the block plan, levels, and drains are furnished for reference, as well as for retention by the authorities. Those who framed the statute could

never have intended any other arrangement than that plans once deposited should be retained, and perhaps it is fortunate that the attention of local authorities should be called to the defective wording of the clauses.

URBAN AND SEASIDE RESIDENCES.

AT this period of the year, when a general exodus of Londoners takes place, and when houses in the Metropolis are vacated for some weeks, or given over to the painters and decorators and plumbers, it is natural and befitting that some attention should be bestowed on the condition of dwellings. Only a very small proportion of the residences, even at the West-End, have been erected on those principles which are now acknowledged to be desirable. How many of the larger residences remain absolutely in the same state as they were before the revival of sanitary science, without any of the conditions required by the more recent Acts—basements which receive exhalations from the soil, ill-drained, badly lighted, and unprotected from dampness? One serious weakness is to be found in many of the superior class of residences in suburbs usually regarded as fashionable. The kitchen offices are sunk in a soil reeking with sewer and gas effluvia, in which the drainage is bad. These rooms have wood floors raised above a soil which has not been covered by a layer of concrete or asphalte; the space under floors is generally imperfectly ventilated, for the air gratings are often stopped up or have been covered over, and the light admitted is often insufficient, necessitating gas the greater part of the day. The kitchen, the servants' hall, butler's pantry, and other offices are thus provided for in the least healthful portion of the house, and those who have to pass their time in them must suffer in consequence. The Metropolitan by-laws do not touch the evil of underground rooms in houses of this description. Lessees are constantly put to expense in matters of drainage. How frequently it happens that the basement floor has to be taken up throughout the whole depth of the house to find out a stopped drain or an imperfect joint which emits sewer-gas into the house! We have seen houses exposed to this inconvenient operation for several days, much to the injury of the health of the inmates. There is no such regulation as that of the model by-law requiring all drains under buildings to be embedded and covered with concrete, so that in the very heart of the Metropolis our sanitary precautions are worse than they are now in any town under urban sanitary authorities. Through want of proper ventilation under the floors, tenants are often exposed to another inconvenience and expense. The basement floors very rapidly decay, the floor-boards give way, especially if covered by linoleum or oilcloth, and even the joists decay so much that a new floor becomes almost indispensable in the course of a few years. We have known lessees of houses in Bloomsbury, Kensington, and Brixton, who have taken houses for the term of seven years, and have had to defray the cost of extensive floor repairs soon after occupation commenced—a point that is deserving of the serious attention of new tenants. Very flattering descriptions of houses to let are often given in the newspapers, which experience often shows to be most delusive. People take, on the bare recommendation of the house agent or farmer, premises which are really in a condition requiring a very general repair. No guarantee is asked for. A surveyor or sanitary expert's report at a trifling fee would set at rest all doubt, besides saving sometimes the cost of heavy repairs at the expiration of the term. Still, people who ought to know better, and whose knowledge of the world's financial and commercial transactions are not small, are constantly being made dupes by signing agreements with repairing covenants without having previously satisfied themselves of the real condition of the premises.

When legislation shall have made it necessary for every house-owner and builder to produce a certificate of efficiency and sanitary construction before letting, the ignorance and apathy of the ordinary tenant will not be attended with the disastrous consequences it now is. We had thought a measure of this kind was within a reasonable distance of realisation; but it seems not. The public can now only protect themselves by appealing to the sanitary authority, and we know the cost that many landlords have thus had to incur by complaints made by tenants whose moderate demands have been unheeded. In several instances within our knowledge the sanitary inspector, when called in, has ordered the whole drainage to be overhauled, and a perfect system adopted, including intercepting chambers and ventilators. The tenant has to put up with the annoyance of having his basement pulled up, drains examined, and additions made. The Public Health (London) Consolidation and Amendment Bills are a step in the right direction. Hitherto the provisions contained in numerous Acts have been neglected—there has been no authority to control details; but the amendment Bill consolidates and amends these provisions. The London County Council is constituted an authority for making all general by-laws which the vestries and district boards will have to see carried out. We may look, therefore, for greater uniformity of administration. The fittings of houses are as badly looked after as their construction. The modern plan of having inspection chambers with suitable channels to receive the branch drains, is only observed in newly-built houses of a superior kind; all the older buildings, and the small rental dwellings are treated in the old-fashioned manner of placing all drains and pipes out of sight. The new by-laws will regulate and control many of the internal arrangements, such as cisterns, water supply, waste and overflow pipes, traps, provision against siphonage, and other plumbers' fittings.

The resorts frequented by those who make holiday excursions are equally in need of supervision. Houses intended for single families, boarding-houses, and hotels at the fashionable seaside are yet without that inspection which ought to be made. A dwelling-house of three or four stories is occupied by as many families in addition to the rooms inhabited by the landlady. For the purpose of letting in floors, each story should be self-contained, with its own conveniences; but this is far from being the case. We have good evidence for believing that one-half the number of houses which receive visitors are totally unfit for the purpose. It may be useful to recall the suggestions issued by the Local Government Board respecting a humbler class of buildings — common lodging-houses—which rules apply to a certain extent to every house which is let out to visitors. These lodging-houses are under the control of the sanitary authority, and have to be inspected before they can be placed on the register, or certified to be fit for a certain number of lodgers. Why should lodging-houses of a superior kind be exempt from this control? Local by-laws are inadequate to meet the requirements, if we are to judge from the complaints made by visitors to many of our seaside places. The drainage is anything but perfect, and sometimes it is much interfered with by tidal conditions; the conveniences are inadequate, the rooms are not arranged for several separate families, and the means of communication are insufficient. The Local Government Board have laid it down that a common lodging-house should possess (1) the conditions of wholesomeness required for dwelling houses in general; and (2) it shoul arrangements fitting it for its special p of receiving a given number of lodger need not inquire into the first con which we may suppose has been fairl though in many of the houses let to f we may find the commonest precautio lected—such as that all waste pipes fro and cisterns discharge in the open a gullies, and the soil-pipe be ventilate should be sorry to say that the cistern clean or wholesome in all cases. The requirements are more frequently over The number of visitors received is no lated by any by-law having reference number and capacity of the sleeping and conveniences. We know a house over-crowded. With regard to bed how many of the attics are let out, no chimney opening, and only a window? Very often a bedroom is two or three persons, having a cubic c barely sufficient for one person. Fo mon lodging houses, the memorandu the effect that in sleeping rooms of o construction, where there are the means of ventilation by window chimneys, about 300 cubic feet wi proper quantity of space for each p but this space, as Mr. Gordon Sm said, is very small when compared w space allowed per person by the polic lations of Paris and Berlin, where th feet are 480 and 350ft. respectively. special requirements are sufficient and day-room accommodation, ref ceptacles, also a water suppl closet accommodation proportioned number of persons received. For th supply 10 gallons a day per inmate sidered necessary for common l houses, and at least the same quan necessary for other kinds of lodging- The needful reform will not be m every house used for this purpose i tered for a certain number of visit bedroom and day-room accommodatio primarily made the basis of calc Many of the hotels and inns which visitors are equally defective in const and sanitary appliances, and must be i in the category of buildings to which w

NONCONFORMIST CHURC BUILDING.*

By James Cubitt.

CHAPTER II.—GIVING INSTRUCTION DESIGNS.

THE first thing to be settled at th is, whether designs are to be from one architect, or from more th This, of course, it rests in each case promoters to decide; but, as a gener ciple, it is worth remarking that churc of any description, to be successful, special study and special knowledge. life is complex to an unprecedented and the business of every profess become complex in proportion. To it all is beyond the power of any being; and he who means to know a thoroughly is compelled, whether he no, to become more or less of a sp This is seen in all directions, but more clearly than amongst architect man, for instance, is a great auth ancient lights, or on dilapidations, trations, and other questions borde the law. Another knows all about and sewers, pumps and pans, pi water-supply. A third is familiar latest improvements in Board scho so finds ample employment in this age of State-supported education. have the city architect, who transfo older streets, and who makes the n what they are; and we have, again,

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rb architect, who gives us, now a pic-
ir quely-arranged group of roads and
ot ges, now a dismal desert of stucco, and
ov a long string of "villas," which look
s i they were manufactured by the mile.
le ly none of these men would be likely
t ce up with success the speciality of any
th , unless it were that of the last named;
nd none of them, with very rare excep-
on , could be expected to hit on any
m ovements, either practical or artistic,
I chance he found it his business to
es n a church. Nor is there much more
o hoped from the "general practi-
on r." It is no fault of his—it results
o the complexity of modern civilisation;
at till, it is a fact that to know a little of
re thing means, nowadays, to know but
tt of anything.

Te specialist, on the other hand, has his
wi dangers. In particular, he is not
ex pt from the common tendency of human
atre, to get into a groove, and stop there.
n it is therefore good for him, and good
r is work, that he should now and again
e used up, and put on his mettle, and made
o his best. In other words, it will not
im any harm, and it will probably do
s ildings much good, if he sometimes takes
r n an architectural competition. By this,
ourse, is meant a "limited" competition,
nned to three or four, or five or six
lted architects. Open competitions seldom
o well for buildings no bigger than an
re ge Nonconformist church. A great
a designs are sent in—but sent in chiefly
r he half-trained and the inexperienced.
re reason is, that where there are such a
u itude of competitors, the matter is not
o h the notice of any skilled architect with
stablished practice, and out of fifty or
x such designs the promoters will find less
ta l opportunity for choice than amongst
r or four submitted by men who really
kr what they about.

Supposing a limited competition to be
cl ed on, it is important to note the best
w of conducting it. The first step is to
ar are and issue the "Instructions" to
co petitors. Very much depends on these
ins uctions. There is one plain principle
w hich they should be based: they should
f full information about facts, but should
cl l, as much as possible, laying down
r rules. Some few rules, indeed, are
u oidable. It is necessary to make a rule
the scale for the plans, and as to the
t for receiving them; and, perhaps, also
the size of perspectives. The scale of
o an inch is the ordinary one for build-
g of moderate dimensions. A smaller one
suffice in the case of very large works;
a larger one is never necessary in com-
ti ions of the present class.

Te rules having been stated, the "In-
st tions" should go on to give the com-
or s information. This information will
ide a plan of the site, a statement about
kind and extent of the accommodation
ed, and about the sum which it is pro-
l to expend. Should the promoters
any suggestions to make about arrange-
, style, or points of detail, these should
dded, but added as suggestions only.
"Instructions," in short, should state all
main facts which would naturally in-
ce an architect in trying to work out
est scheme which circumstances would
t of. But they should not go on to
t that competitors should deal with the
in some particular way and no other.
very object of a competition is to get
ndependent advice of several architects;
this object will be frustrated if some
idea is imposed upon them all at the
t. And, beside this, it should be noted
the freedom which is given to competi-
in the way of submitting a variety of
estions, will be the measure of the com-
ee's freedom in choosing between those
estions. Take, for instance, the case of building materials. If the committee, in their instructions to competitors, make it a rule that their church must be faced with stone outside, or covered with plaster inside, they are binding themselves to reject any design showing a different treatment. And yet it may easily happen that a competitor will see good reason for proposing a different treatment, and that the committee themselves, when they see his design, will be convinced that he is in the right.

A fair amount of time should be allowed for thinking out designs. The question is not how long five or six sheets of plans will take to draw, but how long an architect may require to think over the new set of problems which each new building presents him with. More thought usually means more economy; less ornament, and more art; and this is the direction in which real progress is to be hoped for. Beauty of draughtsmanship is very attractive while a building exists only on paper; but thought and invention are the thing that will tell when the work has been executed.

For this reason, it is a mistake to insist on too many drawings. A plan of each principal floor will be required (if there are more floors than one); also a transverse and a longitudinal section, and an elevation of each principal front. But to make the design intelligible, it is very important also to allow of an interior and an exterior perspective view. A competition without perspectives is likely to be a competition decided by guess. Hardly any committee can realise the effect of an interior merely from plans and sections. Hardly any architect, even, can realise it, if there is any sort of originality or freshness about it, until he has first sketched it in perspective himself. And yet it is for the sake of the interior that the church is built.

There are only two classes of designers who have any motive for objecting to perspectives—those whose training has been so imperfect that they cannot make a perspective view, and those whose composition is so unsatisfactory that it will not bear exposing as perspective exposes it. It does not follow, by any means, that four passable elevations will make a satisfactory building. It is quite possible, on the contrary, that each may injure the others, instead of their all grouping together into an artistic whole. To draw them in perspective is the only way of finding out which is really the case. But it does not need a very large perspective to show this: and for many reasons, it would be well to make a rule that no perspective view submitted should be more than 18in. long or wide.

In former times there was, and sometimes is even now, much alarm about the supposed effects of colour and shading. Rules have been, and still are sometimes, made by which competitors must confine their elevations, and even their prospectives, to pure outline. Now, of all things vitally essential to good architecture, none are more important than the skilful management of light and shade. This is a point which every architect with any artistic sense is always thinking about, and trying to succeed in. It is a thing incomparably more important than mere ornament—a thing which, if successfully accomplished, will make up for the absence of ornament altogether. And yet it is a thing which, by such rules as these, an architect is forbidden to show even when he has secured it. The effect of this is to put the flattest and tamest composition on a level with the most effective one, as far as its chances in a competition are concerned. No wonder if the buildings produced under such a restriction turn out thin and paltry, meagre and tame.

What is true about shading is equally true about colouring. If we wanted to bring back the glories of 18th-century churchwardenism, when every church and every cathedral was whitewashed at frequent intervals, it would be natural enough to let nothing but black and white appear on our drawings. But the fact is that, especially in our cheapest buildings, nothing offers more opportunity for improvement than the colour-treatment of the interiors. So little has been done in this direction yet—for the painting of cast-iron columns bright blue, and the gilding of their capitals, is surely not an improvement, any more than the insertion of raw, staring stained-glass windows; and yet so much might be done, and done at so little cost, except the cost of thought and study. Yet when colour is prohibited in competition drawings, the promoters practically say to every architect, "No advance this way."

Suppose now that the competing designs are sent in. How is the best design most likely to be selected? Shall the committee act on their own judgment, or shall they appoint a professional assessor to help them to decide? Some years ago a considerable number of architects, impressed by the unsatisfactory results of various "open" or "unlimited" competitions, made an effort to improve them. With this view they bound themselves not to take part in any "open" competition unless a "professional adjudicator of established reputation" were appointed. It is particularly to be noted that the engagement thus voluntarily entered into, applied only to "open" competitions. It made no reference to "limited" ones, and did not at all imply that a professional adjudicator was necessary there. And this is not unreasonable. In an open competition, the number of designs submitted is often enormous. From twenty up to as many as two hundred sets of plans have been received in such cases. If each set only comprised five drawings, this would mean that from a hundred up to a thousand plans, elevations, and sections, needed careful study and comparison. The labour is immense, and the multiplicity bewildering. But it is not so with the small number of schemes submitted in a "limited" competition, especially for a building no larger than a church.

The weakest point in the above-named agreement was, perhaps, that which simply insisted on an "adjudicator of established reputation." For it does not in the least follow that an architect of established reputation in one branch of his profession is a suitable man to adjudicate in every other branch of it. The "sanitary" architect is not the best man to adjudicate on a design for a town-hall, nor the town-hall architect on one for a board-school, nor the board-school architect on one for a church. The adjudicator must be thoroughly at home in the particular class of work which he is called in to decide about. And this, again, leads to a serious difficulty. It may be possible, in the case, for example, of a Nonconformist church, to find an adjudicator who understands every detail involved, as well as any of the competitors. But this is not enough. It is of the first importance that the adjudicator should also be placed far above all personal motives in coming to his decision. He should not, for instance, be a "local" architect, whose clear interest it is to keep all outsiders of any ability from coming into his district. He must thoroughly understand Nonconformist church-building, and must therefore be more or less of a specialist, and yet he must have no rivalry with any other specialist in the same line who may be amongst the competitors. And he must not, like many people of "established reputation," be a man in a groove. He must be willing to recognise merit, in spite of its originality, and ready to advocate the adoption of a good idea, even though it happens to be a new one.

Here and there, no doubt, a highly-placed architect may be found who combines all these qualifications. But such a man's time is valuable, and his charges are naturally

high. And it cannot be too strongly insisted on, that it is such an adjudicator, or none, that is wanted. The adjudicator without special knowledge is a delusion, and the adjudicator with personal interests or personal enmities is a snare. However honourable and fair he may intend to be, he is in a radically false position. It is far better for the committee to take the matter into their own hands, to get all the light they can on the subject, and to do their best towards reaching a wise and just decision.

It may be useful to give, in concluding this chapter, an example of the sort of "Instructions" recommended for a limited competition. The clauses in brackets can be added or omitted at the discretion of the committee. Names, numbers, and dates are of course to be altered according to circumstances.

PROPOSED NONCONFORMIST CHURCH, WISCOMBE-ROAD, TREBY.—INSTRUCTIONS TO COMPETITORS.

RULES.

Rule 1.—The competition is limited to .... architects, who have been selected by the building committee.

Rule 2.—The architect whose design is adopted will be employed on the usual terms to arrange for and superintend the execution of the works.

[Rule 2*a*.—Each competitor who has conformed to the rules here stated will receive as an acknowledgment the sum of .... guineas.]

Rule 3.—The drawings required are a plan of each principal floor, a transverse and longitudinal section, and an elevation of each principal front. These drawings must be to a scale of 8ft. to an inch. One or more perspective views may also be sent, but no perspective view must be more than 18in. long or 18in. wide. This size is that of the picture itself, not including any plain margin or mount on which it may be placed. Drawings may be finished in any style—as regards colour and shading—which competitors prefer.

Rule 4.—The drawings must be delivered at the Wiscombe-road Lecture Hall, Treby, on or before ....

INFORMATION AND SUGGESTIONS.

1. A plan of the site, showing the dimensions, the levels, and the points of the compass is supplied herewith. The depths of the sewers, both on the Wiscombe-road and on Hill-street, at the side of the site, are also marked on this plan. The distance to which the frontage line on each street is required to be set back is also shown.

2. The committee wish to provide accommodation, in the first instance, for .... adults, allowing 20in. in width for each sitting, and arranging for the seats or pews to be 2ft. 9in. from centre to centre. It is desired that the church should ultimately be arranged to seat at least .... persons [and, as at present advised, the committee would prefer that all, or nearly all, should be placed on the ground-floor area]. The facilities for this future extension will therefore be taken into consideration in deciding between the various designs.

3. Two rooms, or "vestries," conveniently situated with regard to the pulpit, are required; also a larger room, containing about .... square feet, and well lighted, to be used for ladies' working meetings and similar purposes.

4. Space should be left on the site for a future Sunday-school and class-rooms (for .... scholars), and also for chapel-keeper's rooms, and the necessary offices for the school.

5. The special attention of competitors is requested to the need of so designing every part of the church, both present and future, that an average voice will be easily audible throughout. The arrangements proposed for warming, ventilation, and lighting should also be explained.

6. The sum it is proposed to expend in the first instance will not exceed £..... This includes the cost of the building, and that of the heating and lighting apparatus. The committee consider it very important that this sum should not be exceeded, and they do not undertake to carry out, or to pay for, any design which cannot be erected for this amount. [Should any competitor, therefore, think the choice inevitable, it is suggested that he should show a somewhat reduced amount of accommodation rather than exceed, to any material extent, the limit of cost just stated.]

Suggestions like these may, of course, be amplified and added to. The fixing of a limit to the size of perspectives, in Rule 3, is proposed with the intention of confining them to their proper use—that of explaining, as neither elevations nor sections can, what the building will actually look like. Views of very moderate size will suffice for this, and will not easily lend themselves to false and meretricious effects. The bad name which coloured perspective views have in some quarters obtained, is due mainly to the admission of very large and showily-treated drawings, which, by mere bigness and "loudness," have overpowered everything else. Rule 2a implies that any competitor who sends in views of a larger size than that prescribed, will forfeit the sum promised in acknowledgment of his trouble in preparing designs, and of his risk in competing; and perspectives which exceed the limit of 18in. in size should also be removed from view.

PRICES.—XV.*

[It will have to be borne in mind that the prices given do not include any provision for an increase in the cost of labour, should the men now on strike obtain the 10d. per hour; and contracts taken pending the strike should be entered into with caution, and ought to have a clause allowing an increase if the 10d. is paid, though it scarcely seems probable that it will be.]

MASON (*continued*).

CHIMNEY PIECES.

		£	s.	d.
Quarry planed *slate*, flat jambs, 5in. wide, delivered, not fixed	each	0	7	0
Ditto 6in. wide	ditto	0	8	0
Ditto 7in. ditto	ditto	0	8	6
Ditto 8in. ditto	ditto	0	9	0
Ditto 9in. ditto	ditto	0	10	0
Ditto with plinths, 5in. wide	ditto	0	7	6
Ditto ditto 6in. ditto	ditto	0	8	6
Ditto ditto 7in. ditto	ditto	0	9	0
Ditto ditto 8in. ditto	ditto	0	10	6
Ditto ditto 9in. ditto	ditto	0	12	0
Ditto boxed, 8in. ditto	ditto	0	15	0
Ditto ditto 9in. ditto	ditto	0	17	0
Ditto ditto 10in. ditto	ditto	1	0	0
1in. slate ditto for kitchens, openings 36 by 42				
6in. jambs	ditto	0	9	0
7in. ditto	ditto	0	9	9
8in. ditto	ditto	0	10	9
9in. ditto	ditto	0	11	0
Ditto to 42 by 45 openings				
6in. ditto	ditto	0	9	6
7in. ditto	ditto	0	10	6
8in. ditto	ditto	0	11	9
9in. ditto	ditto	0	12	6
Ditto to 48 by 60 openings				
6in. ditto	ditto	0	10	3
7in. ditto	ditto	0	11	9
8in. ditto	ditto	0	12	9
9in. ditto	ditto	0	14	0
Ditto openings 54 by 60				
6in. jambs	each	0	11	0
7in. ditto	ditto	0	12	0
8in. ditto	ditto	0	13	6
9in. ditto	ditto	0	14	6
Ditto 1½in. slate, openings 42 by 45				
6in. ditto	ditto	0	9	9
7in. ditto	ditto	0	11	6
8in. ditto	ditto	0	13	6
9in. ditto	ditto	0	15	0
10in. ditto	ditto	0	16	9
11in. ditto	ditto	0	18	6
12in. ditto	ditto	1	1	0
Ditto openings 48 by 60				
6in. ditto	ditto	0	10	6
7in. ditto	ditto	0	12	0
8in. ditto	ditto	0	14	6
9in. ditto	ditto	0	16	0
10in. ditto	ditto	0	18	6
11in. ditto	ditto	1	1	0
12in. ditto	ditto	1	3	6
Ditto openings 54 by 60				
6in. ditto	ditto	0	12	6
7in. ditto	ditto	0	13	6
8in. ditto	ditto	0	18	6
9in. ditto	ditto	1	0	0
10in. ditto	ditto	1	2	0
11in. ditto	ditto	1	4	0
12in. ditto	ditto	1	7	0
Ditto 1½in. slate, openings 54 by 60				
9in. ditto	ditto	1	5	0
10in. ditto	ditto	1	7	6
11in. ditto	ditto	1	10	0
12in. ditto	ditto	1	15	0
Ditto openings 60 by 60				
9in. ditto	ditto	1	7	6
10in. ditto	ditto	1	10	0
11in. ditto	ditto	1	12	6
12in. ditto	ditto	2	0	0
Plain enamelled slate				
6in. piers 6in. shelf	each	0	16	0
7in. ditto 7in. ditto	ditto	0	17	6
7in. ditto 8in. ditto boxed, plain plinths, moulded caps	ditto	1	3	6
8in. ditto 9in. ditto ditto	ditto	1	5	0
9in. ditto 10in. ditto ditto	ditto	1	7	6
8in. ditto 9in. ditto moulded neckings or caps and moulded bases	ditto	1	9	0
9in. ditto 10in. ditto ditto	ditto	1	12	0
10in. ditto 11in. ditto ditto	ditto	1	15	0
8in. ditto 9in. ditto with buttons and double necking	ditto	1	14	0
9in. ditto 10in. ditto ditto	ditto	1	15	0
10in. ditto 11in. ditto ditto	ditto	1	19	0
8in. piers 9in. shelf, with dies in frieze, and turned pateræ let in	each	2	5	0
9in. ditto 10in. ditto ditto	ditto	2	7	6
10in. ditto 11in. ditto ditto	ditto	2	10	0
8in. piers 9in. shelf, plain plinths, moulded and carved trusses	ditto	2		
9in. ditto 10in. ditto ditto	ditto	2		
10in. ditto 11in. ditto ditto	ditto	2		
8in. ditto 9in. ditto, &c., as last, and with frog leaves	ditto	2		
9in. ditto 10in. ditto ditto	ditto	2		
10in. ditto 11in. ditto ditto	ditto	2		
8in. ditto 9in. ditto with moulded shelf, inside returns, with caps, moulded bases, &c.	ditto	2		
9in. ditto 10in. ditto ditto	ditto	2		
10in. ditto 11in. ditto ditto	ditto	2		
11in. ditto 12in. ditto ditto	ditto	3		
12in. ditto 13in. ditto ditto	ditto	3		
9in. ditto 10in. ditto with panelled frieze and jambs	ditto	2		
10in. ditto 11in. ditto ditto	ditto	3		
10in. ditto 12in. ditto semi head frieze and jambs with key and panelled	ditto	2		
12in. ditto 14in. ditto ditto	ditto	3		
12in. ditto 13in. ditto ditto with trusses and jambs	ditto	4		
14in. ditto 15in. ditto ditto	ditto	5		

SICILIAN MARBLE.

		£	s.	d.
6in. piers or jambs 6in. shelf, with plain plinths	each	0		
7in. ditto 7in. ditto ditto	ditto	0		
7in. ditto 8in. ditto boxed	ditto	1		
8in. ditto 9in. ditto ditto	ditto	1		
9in. ditto 10in. ditto ditto	ditto	1		
8in. ditto 9in. ditto with moulded neckings and plinths	ditto	1		
9in. ditto 10in. ditto ditto	ditto	1		
10in. ditto 11in. ditto ditto	ditto	1		
8in. ditto 9in. ditto with moulded edges	ditto	1		
9in. ditto 10in. ditto ditto	ditto	1		
10in. ditto 11in. ditto ditto	ditto	2		
8in. ditto 9in. ditto double neckings and turned pateræ and dies	ditto	2		
9in. ditto 10in. ditto ditto	ditto	2		
10in. ditto 11in. ditto ditto	ditto	2		
8in. ditto 9in. ditto trussed and plain plinths	ditto	2		
9in. ditto 10in. ditto ditto	ditto	2		
10in. ditto 11in. ditto ditto	ditto	2		
8in. ditto 9in. ditto with frog leaves	ditto	2		
9in. ditto 10in. ditto ditto	ditto	2		
10in. ditto 11in. ditto ditto	ditto	2		
8in. ditto 9in. ditto with dies and turned pateræ	ditto	2		
9in. ditto 10in. ditto ditto	ditto	2		
10in. ditto 11in. ditto ditto	ditto	2		
11in. ditto 12in. ditto ditto	ditto	3		
12in. ditto 13in. ditto ditto	ditto	3		
12in. ditto 13in. ditto panelled jambs and frieze moulded, and with guilloche carving on each	ditto	4		
10in. ditto 12in. ditto semi-head, and panelled with key	ditto	3		
12in. ditto 14in. ditto ditto	ditto	3		
12in. ditto 13in. ditto with trussed and frog leaves	ditto	4		
14in. ditto 15in. ditto ditto	ditto	5		

VEIN MARBLE.

		£	s.	d.
6in. piers 6in. shelf, plain jambs	ditto	1		
7in. ditto 7in. ditto ditto	ditto	1		
7in. ditto 8in. ditto boxed	ditto	1		
8in. ditto 9in. ditto	ditto	1		
9in. ditto 10in. ditto	ditto	1		
8in. ditto 9in. ditto moulded caps and plinths	ditto	1		
9in. ditto 10in. ditto ditto	ditto	2		
10in. ditto 11in. ditto ditto	ditto	2		
8in. ditto 9in. ditto with buttons and double caps	ditto	2		
9in. ditto 10in. ditto ditto	ditto	2		
10in. ditto 11in. ditto ditto	ditto	2		
8in. ditto 9in. ditto with dies & pateræ	ditto	2		
9in. ditto 10in. ditto ditto	ditto	2		
10in. ditto 11in. ditto ditto	ditto	2		
8in. ditto 9in. ditto plain jambs, moulded trusses	ditto	2		
9in. ditto 10in. ditto ditto	ditto	2		
10in. ditto 11in. ditto ditto	ditto	3		
8in. ditto 9in. ditto with frog leaves	ditto	2		
9in. ditto 10in. ditto ditto	ditto	2		
10in. ditto 11in. ditto ditto	ditto	3		
8in. ditto 9in. ditto moulded edges, inner linings, &c.	ditto	3		
9in. ditto 10in. ditto ditto	ditto	3		
10in. ditto 11in. ditto ditto	ditto	3		
11in. ditto 12in. ditto ditto	ditto	3		
12in. ditto 10in. ditto ditto	ditto	4		
Add for guilloche mouldings, &c.	ditto	1		
10in. ditto 12in. ditto semi-head, panelled and moulded edges	ditto	3		
12in. ditto 14in. ditto ditto	ditto	4		
12in. ditto 13in. ditto ditto trussed, &c.	ditto	5		
14in. ditto 15in. ditto ditto	ditto	6		

ROUGE ROYAL.

		£	s.	d.
7in. piers 8in. shelf, boxed	ditto	1		
8in. ditto 9in. ditto ditto	ditto	1		
9in. ditto 10in. ditto ditto	ditto	2		
8in. ditto 9in. ditto moulded caps and plinths	ditto	2		
9in. ditto 10in. ditto ditto	ditto	2		
10in. ditto 11in. ditto ditto	ditto	2		
8in. ditto 9in. ditto with buttons and pateræ and black mounts	ditto	3		
9in. ditto 10in. ditto ditto	ditto	3		
10in. ditto 11in. ditto ditto	ditto	3		
8in. ditto 9in. ditto ditto plain jambs, boxed and moulded trusses	ditto	2		
9in. ditto 10in. ditto ditto	ditto	3		
10in. ditto 11in. ditto ditto	ditto	3		
8in. ditto 9in. ditto moulded edges, trusses, frog leaves, and return linings	ditto	3		

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			£	s.	d.
n. piers 10in. shelf, moulded edges, trusses, frog leaves, and return linings	each		3	4	0
n. ditto 11in. ditto ditto	ditto		3	8	0
n. ditto 12in. ditto ditto	ditto		3	15	0
n. ditto 13in. ditto ditto	ditto		4	4	0
n. ditto 12in. ditto semi-head and panelled with key and plinths	ditto		4	10	0
n. ditto 14in. ditto ditto	ditto		4	15	0
n. ditto 13in. ditto ditto trussed with frog leaves and panelled	ditto		6	17	6
n. ditto 15in. ditto ditto	ditto		8	10	0

ST. ANN'S.

n. ditto 8in. ditto boxed plain	ditto		1	18	0
n. ditto 9in. ditto ditto	ditto		2	2	0
n. ditto 10in. ditto ditto	ditto		2	8	0
n. ditto 9in. ditto ditto with moulded neckings and moulded plinths	ditto		2	5	0
n. ditto 10in. ditto ditto	ditto		2	10	0
n. ditto 11in. ditto ditto	ditto		2	15	0
n. ditto 9in. ditto ditto black mounts, turned pateræ let in, and buttons	ditto		3	12	0
n. ditto 10in. ditto ditto	ditto		3	15	0
n. ditto 11in. ditto ditto	ditto		4	2	0
n. ditto 9in. ditto plain boxed with trusses	ditto		2	18	0
n. ditto 10in. ditto ditto	ditto		3	3	0
n. ditto 11in. ditto ditto	ditto		3	8	0
n. ditto 9in. ditto ditto moulded edges, trusses, frog leaves, inner linings, and caps, and moulded plinths	ditto		3	6	0
n. ditto 9in. ditto ditto	ditto		3	9	0
n. ditto 11in. ditto ditto	ditto		3	12	0
n. ditto 12in. ditto ditto	ditto		4	0	0
n. ditto 13in. ditto ditto	ditto		4	6	0
n. ditto 12in. ditto semi-headed, keyed, panelled, and with moulded plinths	ditto		5	5	0
n. ditto 14in. ditto ditto	ditto		5	10	0
n. ditto 13in. ditto ditto with trusses, frog leaves, &c.	ditto		7	15	0
n. ditto 15in. ditto ditto	ditto		8	15	0

BLACK MARBLE.

n. ditto 12in. ditto panelled, trussed, moulded	ditto		7	5	0
n. ditto 13in. ditto ditto	ditto		7	12	0
n. ditto 15in. ditto ditto	ditto		8	5	0
n. ditto 15in. ditto ditto with heavy moulded inner lining, pateræ, &c.	ditto		12	10	0

There are several stones used in London and suburbs that have not been given in detail; following is a list.

Bolton Wood.—This is a durable stone easy to rk, and fine in grain; price, delivered within r miles of depot, and including builder's fit, 3s. 4d. per cubic foot.

Bramley Fall.—This is a Yorkshire stone. The rries are near Leeds. The stone is quarried very large blocks, and is a hard York, and ch used for templates and bases under iron; ce, 2s. 5d. delivered within four miles of ots, King's Cross or St. Pancras. This price ludes builder's profit, but not waste.

Caen.—This stone comes from Normandy; ce, delivered within four miles of depot, 2s. 6d. cubic foot, including profit, but not waste.

Darley Dale.—This quarry is near Matlock; ce, 3s. per foot cube delivered within four es, including the builder's profit.

Ham Hill.—This is considered a good weather ne, and is quarried in large sizes; price, ivered within four miles of Paddington tion, including builder's profit, 2s. 4d. per ic foot, and these and following prices do not lude anything beyond the items described.

Hare Hill.—This is a Yorkshire stone, softer n these given in detail in the early part of the son; price, delivered within four miles of ot, including builder's profit, 3s. 3d. per ic foot.

Idle Moor.—This is a Yorkshire stone, quarried r Bradford; price, delivered within four es, 3s. 3d. per foot cube, including profit.

Ketton.—This stone comes from Rutland; ce, 3s. per foot cube delivered within four es of King's Cross, including profit.

Matlock Bridge.—This is a Derby stone; e, 2s. 10d. delivered within four miles of ot, including profit.

Painswick.—This stone comes from Glouces- hire; price, 2s. 4d. delivered within four es, including profit.

Park Nook.—This is a Yorkshire stone, and is of the softer ones; price, delivered within r miles of depot, 2s. 10d. per foot cube.

Potter Newton.—This is also a Yorkshire e; price, 3s. 4d. per cube foot delivered hin four miles of depot, including profit.

Roche Abbey.—This is another York stone; price 10d. per cube foot, delivered within four miles epot, including profit.

Rotgate Head.—This is a Yorkshire stone, rried near Huddersfield; price 2s. 9d. per e foot, delivered within four miles of depot, uding profit.

Spinkwell and Cliffwood.—This is also a Yorkshire stone, quarried near Bradford; price, delivered within four miles of London depot, including profit, 3s. 6d. per foot cube.

PAVIOR.

Asphalte paving has already been given.
Wood-block paving will be given in Carpenter.
Concrete under pavings has already been given.
Blue brick tile, &c., were given in Bricklayer.
Cement paving will be given in Plasterer.

				£	s.	d.
5in. granite paving, including profit, per yard super				0	9	0
7in.	ditto	ditto	ditto	0	11	0
8in.	ditto	ditto	ditto	0	13	0
9in.	ditto	ditto	ditto	0	15	0
5in. ditto in parallel courses 5in. wide			ditto	0	10	0
7in.	ditto	ditto	ditto	0	12	0
8in.	ditto	ditto	ditto	0	14	6
9in.	ditto	ditto	ditto	0	16	0
Taking up old 5in. and levelling			ditto	0	0	2
Ditto 7in.	ditto		ditto	0	0	2½
Ditto 8in.	ditto		ditto	0	0	3
Ditto 9in.	ditto		ditto	0	0	3½
Add for stacking				0	0	1
Add for relaying—						
5in.	ditto		ditto	0	1	0
7in.	ditto		ditto	0	1	2
8in.	ditto		ditto	0	1	4
9in.	ditto		ditto	0	1	6
Guernsey and Jersey pebble paving laid on screened gravel—						
Ditto 4in.	ditto	ditto	ditto	0	7	0
Ditto 5in.	ditto	ditto	ditto	0	8	6
Taking up and relaying ditto			ditto	0	1	3
Grouting in sand and lime			ditto	0	0	6
5 by 7 crossings, including laying			ditto	0	11	0
Taking up and relaying ditto			ditto	0	1	6
5 by 10 Aberdeen kerb, set complete		per foot run		0	1	6
6 by 10	ditto	ditto	ditto	0	1	9
5 by 12	ditto	ditto	ditto	0	1	9
6 by 12	ditto	ditto	ditto	0	2	0
6 by 12, flat	ditto	ditto	ditto	0	2	2
8 by 12	ditto	ditto	ditto	0	2	4
Add for circular			ditto	0	0	3
5 by 10 Cornish ditto and setting			ditto	0	1	5
5 by 12 ditto	ditto	ditto	ditto	0	1	8
6 by 10 ditto	ditto	ditto	ditto	0	1	8
6 by 12 ditto	ditto	ditto	ditto	0	1	10
6 by 12 flat	ditto	ditto	ditto	0	2	0
8 by 12 ditto	ditto	ditto	ditto	0	2	2
Add for circular				0	0	3
Taking up and resetting kerb				0	0	3
Granite channels 1ft. 8in. wide		per foot run		0	1	3
Ends of kerb jointed			each	0	1	0
Ditto on splay			ditto	0	1	4
Quadrants in 5 by 10			ditto	0	8	0
Ditto 5 by 12			ditto	0	9	6
Ditto 6 by 10			ditto	0	10	6
Ditto 6 by 12			ditto	0	12	0

Daywork:—

Mason	per hour	0	0	10½
Ditto, including foreman	ditto	0	0	11
Ditto setting	ditto	0	0	11
Labourer	ditto	0	0	7½
Pavior	ditto	0	0	10
Labourer	ditto	0	0	7
Excavator	ditto	0	0	7½

Cement, sand, &c., see Bricklayer, &c.
Artificial pavings will be given in Plasterer.

SLATER.

Sizes of slates used in covering roofs:—

Doubles 12in. by 6in., 1,200 (the slater's thousand) will cover about 2 squares at 2½in. lap, and weigh 12cwt.

Small Ladies 14in. by 8in., 1,200 will cover about 4 squares, and weigh about 20cwt.

Ladies 16in. by 8in., 1,200 will cover about 5 squares, and weigh 1¼ tons.

Small Countess 18in. by 10in., 1,200 will cover about 6¼ squares, and weigh about 1¾ tons.

Ditto 18in. by 9in., 1,200 will cover 5¾ squares, and weigh about 32cwt.

Countess 20in. by 10in., 1,200 will cover about 7 squares, and weigh about 2 tons.

Duchess 24in. by 12in., 1,200 will cover about 10 squares, and weigh 3 tons.

Ditto 22in. by 12in., 1,200 will cover about 9½ squares, and weigh 2¾ tons.

Ditto 22in. by 11in., 1,200 will cover about 9 squares, and weigh 51cwt.

There are a few other sizes that are very seldom used, *i.e.*, queens, imperials, rags, 16in. by 10in., called wide ladies, cover 5½ squares, and weigh 1½ tons; 20in. by 12in. cover 8¾ squares, and weigh 2½ tons per 1,200.

Best Bangor slating to roofs, 2½in. lap, and 1½in. zinc nails, including profit.

			£	s.	d.
Ladies 16 by 8	per square		1	5	0
Countess 18 by 9	ditto		1	7	0
Ditto 18 by 10	ditto		1	8	0
Ditto 20 by 10	ditto		1	9	0
Duchess 20 by 12	ditto		1	9	0
Ditto 22 by 11	ditto		1	9	0
Ditto 22 by 12	ditto		1	11	0
Ditto 24 by 12	ditto		1	11	0
Add for 3in. lap			0	1	3
Add for copper nails			0	1	3
Add for torching inside with lime and hair per square			0	2	6
Add for circular work, about one-fourth, unless very quick or small					
Deduct for open slating, one-fifth					

Portmadoc Slating. Best 2½ lap and zinc nails

16 by 8	per square		1	4	6
18 by 9	ditto		1	6	0
18 by 10	ditto		1	7	0
20 by 10	ditto		1	8	0
20 by 12	ditto		1	8	0
22 by 11	ditto		1	8	0
22 by 12	ditto		1	10	0
24 by 12	ditto		1	11	0
Add for lap, nails, &c., as before					

Permanent Green Slating.—2½ lap, zinc nails, 18in. by 9in; Countess, 20in. by 10in.; Duchess, 24in. by 12in. These are about 10s. per square beyond the blue slates; it is best to get special prices for them.

Eureka Green.—These are about the same prices as permanent green.

Whitland Abbey, Countess, 2½ lap, zinc nails	per square		2	2	0
Small ditto	ditto		2	0	0

When there is any large quantity of this slating, obtain special prices.

RIDGES AND HIPS.

Williams, 1¼ roll, 4½in. wings round top, and square joints				per foot run		0	1	0
Ditto	1½	4½in. wings		ditto		0	1	0½
Ditto	1¾	5in.	ditto	ditto		0	1	2
Ditto	2	5½	ditto	ditto		0	1	3½
Ditto	2½	5¾	ditto	ditto		0	1	5
Ditto	1¾ roll, 5in. wings, round top and rebated joints				ditto	0	1	3
Ditto	2	5½	wings		ditto	0	1	4½
Ditto	2½	5¾	ditto		ditto	0	1	6
Daveys,	1¾ roll, 5½in. wings				ditto	0	1	4
Ditto	2	6	ditto		ditto	0	1	7½
Ditto	2½	6	ditto		ditto	0	1	9
Ditto	2¾	6½	ditto		ditto	0	1	11
Ditto	3	7	ditto		ditto	0	2	3

(These prices include cut ends to mitres and waste.)

Ashton Green's, 1¾ roll, 5in. wings, square joints					ditto	0	0	11
Ditto	2	5½	ditto	ditto	ditto	0	1	0
Ditto	2½	6	ditto	ditto	ditto	0	1	4
Ditto	3	7	ditto	ditto	ditto	0	1	9
Ditto, with rebated joints, add to each size					ditto	0	0	1½
Thomas's, 1¾ roll, 5 wings					ditto	0	2	4
Ditto	2	5½	ditto		ditto	0	2	6
Ditto	2½	5¾	ditto		ditto	0	2	10
Ditto	2¾	6	ditto		ditto	0	3	2
Plain slate ribbing—								
Ditto	5				ditto	0	0	6
Ditto	5½				ditto	0	0	6½
Ditto	6				ditto	0	0	7½
Ditto	7				ditto	0	0	9½
Add for rebated joints					ditto	0	0	1
Price of roll only, unfixed—								
Ditto	1¾				ditto	0	0	5
Ditto	2				ditto	0	0	5½
Ditto	2½				ditto	0	0	8½
Ditto	3				ditto	0	0	11
Add for rebated joints					ditto	0	0	1
Any of these ridges, &c., if unfixed and cut to size, will be charged extra for cutting to size					ditto	0	0	1
Close cut hips in slating					ditto	0	0	6

Roofing slates, per 12,000, delivered, &c., including builders' profit—

12 by 6	Best Portmadoc		2	5	0
13 by 7	ditto	ditto	3	7	6
13 by 10	ditto	ditto	5	0	0
14 by 7	ditto	ditto	3	18	0
14 by 8	ditto	ditto	4	15	0
14 by 10	ditto	ditto	5	15	0
14 by 12	ditto	ditto	7	0	0
16 by 8	ditto	ditto	5	15	0
16 by 9	ditto	ditto	6	7	6
16 by 10	ditto	ditto	6	15	0
18 by 9	ditto	ditto	7	0	0
18 by 10	ditto	ditto	8	0	0
20 by 10	ditto	ditto	9	10	0
22 by 11	ditto	ditto	10	15	0
22 by 12	ditto	ditto	12	5	0
24 by 12	ditto	ditto	15	5	0
24 by 14	ditto	ditto	16	10	0
Medium ditto:—					
13 by 7	ditto	ditto	3	0	0
14 by 7	ditto	ditto	3	5	0
14 by 8	ditto	ditto	3	10	0
16 by 8	ditto	ditto	4	10	0
16 by 9	ditto	ditto	5	0	0
16 by 10	ditto	ditto	5	10	6
18 by 9	ditto	ditto	5	15	0
18 by 10	ditto	ditto	6	15	0
20 by 10	ditto	ditto	7	15	0
22 by 11	ditto	ditto	9	10	0
22 by 12	ditto	ditto	10	2	0
24 by 12	ditto	ditto	11	5	0
24 by 14	ditto	ditto	14	0	0

Herr Carl Hilgers, the sculptor, who sent in one of the models for a National Monument to the late Emperor William, has been awarded a prize of 12,000 marks in addition to the 4,000 marks assured to each of the competitors.

The foundation stone of SS. Mary's and Edward's, Silvertown, was solemnly laid last week. The building is to be of Classic design, measuring 103ft. by 52ft., and is designed by Mr. F. W. Tasker. It will cost £5,000 to complete. The foundations are 23ft. deep, and one-tenth of the outlay will be absorbed by them.



SUSSEX TOWERS.

FOR quietness and repose the churches of Sussex are almost unique. In Yorkshire, Northamptonshire, the Eastern Counties, and also in Somersetshire we see edifices of a certain dignified proportion of stone or flint and brick, with lengthened naves and chancels, with aisles, and often with transepts of small projection, and with towers and spires of handsome and stately outline, sometimes over the crossing, but oftener rising at the west end to a considerable altitude. But in Sussex a very different type is presented, much more simple and unpretentious in style, and frequently small churches of cruciform plan, with a low, square central tower, like those of Broadwater, Poynings, or Alfriston, and these are often Perpendicular in style, though by no means without features of other periods. Many of these churches are built of flint masonry, and have tiled roofs, materials which perfectly harmonise with the foliage and rural surroundings, and appear to have grown, as it were, with the landscape. Simple and unpretending as they are, they possess features and peculiarities of interest. One of these is the tower, which is generally central and low, exceedingly plain, pierced by small openings, and surrounted by an embattled parapet, of which the small church at Poynings may be taken as an example. Broadwater Church, near Worthing, the mother church of the parish, has one of these low, central towers embattled, pierced on each side by a couple of Transitional Norman windows, while in the same vicinity are two other interesting structures. One is the ancient church of Sompting, a cruciform edifice with a square west tower, well known to all students of Mediæval architecture as being one of the few types of tower of supposed Saxon date. The sides terminate in gables, and a low roof of square pyramidal form, set with its hips or angles coincident with the spires of the gables, crown them. This mode of roofing a tower is, no doubt, a primitive one, and is adopted in many of the German towers. The other church, of West Tarring, is also an interesting structure of Early English features, with a western tower of considerable size, pierced with windows of Perpendicular date. It is surmounted by a shingle spire, and has an embattled parapet. The south side has a square projecting staircase finished level with the top of parapet.

In the present brief article we confine our readers' attention to one or two kinds of towers which characterise this district, and which possess features of a little more interest than are generally found. The first of these, of which we give a rough sketch (I.), represents the shingle spire of a small flint church at Keymer, near Hassock's Gate station. The church itself is modern, with the exception of a Norman circular apse. The tower has a restored appearance, and is of flint and stone. Above the flint walls, the broach of spire assumes the shape of a truncated pyramid, and is of tile with louvre ventilators, as shown; above rises a small octagonal broached spire of shingle. The general effect of this little spire is exceedingly simple, and is obviously characteristic. It is a very picturesque object as the visitor approaches it by the road to Ditchling, and may afford the architect a good model for the termination of a village church tower. The village of Ditchling possesses a cruciform church of very picturesque outline and exceeding simplicity. It has a Transitional nave and aisle, the latter, as our sketch shows (II.), being a continuation of the nave roof. The church is built of flint, with tiled roofs; the nave is of three bays length, with windows of Decorated character. The chancel is pierced by three lancets at the sides, and the east end has a three-light Geometrical window of three cusped circles, and the south aisle has a Late Decorated window of three lights. The south transept has a Late Perpendicular three-light window. But the principal external feature is the central tower, plastere its low pyramidal spire and louvres (see a termination which combines extreme si with appropriateness of character. In this tion the architectural tourist will find interest him in a picturesque old timber on the opposite side of the road, which has of circular cut pieces and a good brick chi

A tower and spire of more pretension, good outline, is that of Southwick on the line from Brighton to Portsmou Sketch III.), backed by thick foliage tower, of flint and stone, has a slightly lower story with two sets off, which giv agreeable profile. It is built of flint with dressings at the angles, and the and Transitional windows are filled wi work. The jambs to the lower windo Norman pillars and capitals (*b*), and the effective corbelling to tower (*a*). The sp shingle, and is boldly broached at the spi The church has a nave and aisles withou of architectural interest except a nice dicular chancel screen and a painted wi the Crucifixion. The general view church, amidst its background of t pleasing and picturesque.

One point of interest is apparent in a towers, the influence of material. Fl suggested a treatment very much more than would have been the case had the offered abundant stone. In Somers Gloucestershire, and Lincolnshire we result of abundant supplies of freestone. was prodigally used throughout for wall dressings alike, and the architect and both devoted their skill to working in a that offered such facilities; elaborate ling and relief ornaments were the result. thought and designed in stone. On the co a chalk district offered nothing but flin hard and intractable to cut, too small to courses, and the very hardness and diffic



orking became inseparable factors in restrict-g design. Plainness of wall-surface followed a matter of course, and the only ornamental atures were the insertion of a few simply-eated traceried windows. In Norfolk and affolk the flint-work is combined with brick in manner at once architectural and decorative, d some of the noble flush-work towers we may ention in another article.

RESIDENCE, HEATHFIELD, SUSSEX.

THIS property, which originally consisted of a pair of cottages, is now being con-derably altered and enlarged as a country sidence. It is charmingly situated on an evated site, and commands fine views of the rrounding country.

The additions are constructed with red bricks, athstone dressings, bright red weather tiling, alf-timber and cement and shingle rough-cast, he roof being covered with dark tiles.

The works are being carried out by Mr. Piper, uilder, of Punnett's Town, Heathfield, under he superintendence of Mr. H. Percy Monckton, .R.I.B.A., of 32, Walbrook, E.C.

REPORT OF THE ROYAL ARCHITECTURAL MUSEUM.

THERE has been an increase of nearly 54 per cent. in the amount of the students' fees uring the past year at the Royal Architectural Iuseum, Westminster, showing an advance of 238 9s. 6d. for the sessions of 1890, and bringing p the fees to £681 14s. In 1886 they only mounted to £123 7s. 9d., since which time a teady advance has been made. In the examina-ions, the result of the school's work has, accord-ng to the report issued to subscribers this week, een most successful. In the drawing from the ife, 28 passed out of 30 candidates. Of these, 3 ecured honours, 6 first class, and 19 second class. Shading from the model and from casts is not nuch in favour at these classes in Tufton-street, nd we note with regret that perspective and reehand draughtsmanship are on the wane in the chool, showing an absence of energy among the lementary students. The fees for these subjects eing so low by the Departmental regulation, nd the grants from South Kensington on their ccount being also very small, no encouragement s afforded to the masters to develop such tuition. The general character of the school at West-minster has, notwithstanding, never been better than it is at the present time, as the above figures undoubtedly demonstrate. The subscriptions to the Institution, however, show a marked decrease, which very seriously interferes with the possibilities of extended usefulness. The classes are so crowded that competition has to be resorted to in order that an entry may be obtained by those who, in excess of the accommodation, are seeking admission. The subscriptions, which ten years ago exceeded £200, were last year brought down to £117 4s. Many old friends of the museum have been removed by death, and additional subscribers are much wanted, with a view to further developing the class accommodation of the school, which has been greatly increased during the last five years. The Science and Art Department decline to aid the school in this direction unless the freehold, worth many thousands of pounds, is handed over to that authority. A grant of about £200 might then be made. The idea is too absurd for consideration. Mr. Fred Brown is the head master still, and in the place of the late Mr. R. A. Ledward, Mr. Fred E. E. Schenck has been appointed modelling master. It is satisfactory to record that a fund of between £1,000 and £1,200 was raised by the brother artists and friends of the late master for the benefit of his widow and children. The income of the Royal Architectural Museum and School of Art during the past year amounted to £1,251 17s.

THE BRITISH ASSOCIATION MEETINGS.

THE proceedings at the meetings of the British Association held during the past week at Cardiff have been rather dull altogether, and singularly devoid of interest so far as architects are directly concerned. Dr. Huggins's presidential address dealt in a highly technical manner with the minutiæ and results of spectrum analyses. Sir E. J. Reed, M.P., advertised his scheme for a tubular railway on the bed of the English Channel, which was criticised by Messrs. Abernethy and Greathead, Sir B. Baker, and other experts as costly and out of all proportion to the amount of work to be done. Mr. W. Furnivall, C.E., in a paper on "Indian Railway Communication," explained that 16,277 miles are now open to traffic, of which about two-thirds are on the standard gauge of 5ft. 6in. and the remainder on a narrower gauge. The cost of the latter was about half that of the broad-gauge lines, but the returns were almost alike for both. He claimed that Indian railways had been well laid out and well built, and showed that their demands on England for iron and steel equalled one-tenth of all English exports last year. Mr. William Key, of Glasgow, described "The Ventilating and Heating by Mechanical Means of the Victoria Infirmary, Glasgow." He explained that the building was constructed without fireplaces or steam-pipe heating apparatus. The air was drawn from a shaft 10ft. above the ground, and, after passing through a screen of damp hemp and hair, was purified. It entered a chamber which was heated by hydraulic coils, and thence passed into the various wards and administrative offices. Arrangements were made by which the temperature of each or all of the wards could be regulated to suit the needs of patients, and the atmosphere was entirely renewed at least six times an hour. In a discussion which followed, Sir Douglas Galton commented on the advantages of the system, Sir Frederick Bramwell adversely criticised the use of damp screens, which, he contended, would saturate the air which was admitted, and Mr. A. R. Binnie and Mr. J. Head also spoke. "A New Method for the Disposal of Sewage" was described by Mr. C. G. Moor, the only novelty being in the manner in which the sludge cake produced by any precipitation process might be converted into marketable products. This treatment had been practically tested at experimental works at Leyton. In the Anthropological Section, papers were read by Mr. Edwin Seward, R.C.A., of Cardiff, on "The Formation of a Record of Prehistoric Remains in Glamorganshire," now in progress under the auspices of the Cardiff Naturalists' Society, and Dr. J. S. Phené one on "Recent Hittite Discoveries," the doctor's theories being severely handled in a subsequent discussion. Mr. A. R. Bennett's paper on an electrical parcel exchange system by means of miniature electric railways laid in underground pipes gave rise to a warm controversy, in which Sir Frederick Bramwell (who maintained that a tube or tunnel under a street could not be made for less than £15 to £20 per lineal yard), Mr. A. R. Binnie, Mr. Greathead, and Professor A. E. Elliot raised objections to the cost and inconvenience that would be involved by the construction of the proposed tubular lines. Full reports of the proceedings at the congress appear in the last and current issues of the *English Mechanic and World of Science*—those for August 21 and 28.

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ILLUSTRATIONS.

DESIGNS FOR THE NEW SOUTH KENSINGTON MUSEUM BUILDINGS SUBMITTED BY THOMAS N. DEANE AND SON, AND WILLIAM YOUNG.—GRAND HOTEL, CROMER.—ARCHITECTURAL ASSOCIATION EXCURSION SKETCHES.—RESIDENCE, HEATHFIELD, SUSSEX.—NEW BOARD SCHOOL, WATFORD.—STABLES AND OFFICES, KILLINEY.

Our Illustrations.

SOUTH KENSINGTON MUSEUM COMPETITION.

In continuation of our series of illustrations of the designs submitted for the completion of the Museum buildings at South Kensington, we publish this week the perspectives and plans of those sent in by Sir Thomas N. Deane and Son, and by Mr. William Young.

THE GRAND HOTEL AT CROMER.

The Grand Hotel at Cromer, the construction of which has occupied a little over twelve months, cost, with the fixtures, about £15,000. It was opened last week. The building is situated on the Runton-road, near the cliff, with a frontage of 180ft., immediately facing the sea, and stands upon some of the highest ground in Cromer. The hotel is in red brick, with stone dressings, and the roof is covered with green slates, surmounted by ridge cresting and a central turret. The principal entrance is in the centre under a portico, approached by steps. On either side of the portico is a bay window, running up three stories. Balconies run along almost the entire front on the first-floor level, and there are other balconies. Entering the building, we find ourselves in a spacious entrance hall, 45ft. long by 22ft. wide, and 14ft. 6in. high, lighted by three large stained-glass windows reaching from floor to ceiling. The floor is laid with solid oak parquetry, and the walls are hung with the new wall hanging called "Anaglypta." There is a high dado of reeded pattern, coloured in a dark shade of cool grey-green. Above the dado rail the "filling" is a rich brown red, with gilt relief in a Japanese style, and above the picture rail a frieze of a lighter red tint in high relief, with sea-horses, dolphins, &c., for the decoration. The woodwork of the hall is walnut throughout. Facing the main entrance is the manager's room, and towards the left hand, connected with this, is the hotel bureau, or inquiry office. On the right hand is the grand staircase leading up to all the floors, constructed of polished walnut with teak treads and risers. The stairs are 6ft. broad, and ascend by easy flights to the various floors. The staircase is lighted by stained-glass windows. The dining-hall occupies the whole east wing of the building. It is 55ft. long by 34ft. wide, with a solid oak and walnut parquet floor, the walls being hung to the dado line with "Anaglypta" of a deep maroon colour. Above the dado the walls are green and gold, and above the picture rail is a similar frieze in lighter tones. The piers forming the walls of the hall into bays are faced with alabaster pilasters of rich brown-red colour, with gilded caps and bases. The ceiling is coffered and enriched. The windows are fitted with plate glass, and stained glass for the upper portions. There are three fireplaces, with walnut chimneypieces. Opposite the dining-hall is the drawing-room, 38ft. long by 20ft. wide, lighted by three large semi-circular headed windows. The dado is of a pale grey-green, and the wall above is of cream, with highly embossed gold pattern on it, and the frieze is of decorated "Anaglypta." There are two fireplaces, one at each end of the room, in carved woodwork. The reading-room and private sitting-room, and the smoking and billiard rooms, have been purposely relegated to the extreme west of the building, so as to be almost completely cut off from the rest of the hotel. The smoking-room is 30ft. long by 18ft. wide, and has an angle turret, from the windows of which sea and land views are obtainable. The walls are hung with Spanish leather wall-hanging, and the frieze is in high relief, richly decorated. The woodwork is coloured in peacock blues and greens, the ceilings being ribbed. The gasfittings are of wrought-iron and copper, and a lamp of Moorish design will light the arched recess. Between the billiard-room and smoking-room a small bar has been arranged so as to serve both rooms direct. The billiard-room is lofty, with an open roof and lantern light 36ft. long by 28ft. wide, and 15ft. to the tie beam. Adjoining the billiard-room is a porter's or luggage room and the luggage lift. There is also a door which leads to the tennis court and stabling, and the gentlemen's lavatory is adjacent. The kitchen is central and at the rear, large and well lighted, with open roof. The laundry, also at the rear, is elaborately fitted by Bradfords of London, and every provision is made so that no smells or vapour shall enter the building from the departments of service. The building is served with water from the Cromer Waterworks, besides which the hotel has a private well of its own, with force pump to fill the 1,000-gallon tank at the top of the building. Fire hydrants and hose are provided on each floor for the protection of the building. A passenger luggage lift works from the basement to the top floor, and a service stairs is likewise provided. The contract for the work has been carried out by Messrs. J. Youngs and Sons, contractors, of Norwich. The carved brickwork was executed by Mr. Minns, of Norwich, and came, together with the moulded brickwork, from the works of Mr. George Gunton, of Costessey. The parquet flooring was laid by Messrs. Turpin, of London. The heating apparatus is by Heim, of London and Vienna. The stoves and ranges, and most of the chimney-pieces, tile mantels, and fenders, with hot-water apparatus throughout, were supplied by Messrs. Theobald, Johnson, and Burton, of Norwich. The stained glass and decorative painting have been executed by Messrs. J. and J. King, of St. Andrew's, Norwich. Mr. Pank has supplied the gasfittings and electric bells, and Messrs. Sturgess and Towlson the luggage and dinner lifts. The architects are Messrs. G. J. and F. W. Skipper, of Opie-street, Norwich.

SKETCHES NEAR LUDLOW.

In conclusion we print to-day our last sheet of sketches illustrative of the historic architecture of Shropshire in connection with our report of the excursion of the Architectural Association, finished last week. The subjects chosen are from places near Ludlow, and they show either porches or gateways. The plate of drawings begins with the gatehouse of Bromfield Priory, near Ludlow, standing under the shadow of tall Scotch firs, leading to the grey old Priory church. The lower part of the gateway is contemporary with the church, Early English in style, and the timbered upper part is, of course, later. The windows have been much modernised, and the building is used now as a school. The church has a rare history, and is worth seeing. Knighton, still on the Teme, which hereabouts divides the counties of Radnor and Salop, is chiefly remarkable for the old mansions in the town, where the Brydges and the Crowthers once made a name. We give a sketch of the venerable and unrestored porch to the otherwise not attractive church. The woodwork, though patched, is boldly treated, and the porch is of good design. The last two sketches are from Weobley, where Ley's Farm (the porch of which figures at the foot of the plate) is one of the several decayed old houses still to be seen, illustrating work from the 14th, 15th, and 16th centuries. This doorway is dated 1589. The barge boards of the building are specially rich and well designed. A set of measured drawings of the building and some details will be found in Vol. X. of the old series of the "Architectural Association Sketchbook."

WATFORD BOARD SCHOOLS.

These schools, now finished, give accommodat for 140 boys, 140 girls, and 100 infants. infants' school is in the centre, with the b and girls' departments on either side, each be distinct and complete in itself. The classro are divided from the main schools by slid glazed screens, to allow rooms to be used sep ately or as one, as occasion may require. teachers' room is provided for boys' and gi departments, with fireplace and cupboard. seating is on the dual system; the schools heated by open fireplaces, supplied by Mr. Sh land, of Manchester; and fresh warmed ai brought into corridors and cloak rooms f these stoves; cold fresh air is admitted on Tobi system to all rooms. The walls are faced ternally and internally with picked local stoc with red bricks for quoins, cornices, and moul work. A dado inside is provided 4ft. high Keen's cement, and painted. The floors are Lowe's solid wood blocks on concrete. Cl rooms, lavatories, and passages have Stua granite concrete. All the internal woodwor stained and varnished, and the outside pain white. The work has been carefully carried by Messrs. Waterman, builders, of Watfo The architects are Messrs. Ayres and Ardron, 8, Southampton-street, W.C., and Watford.

STABLES AND OFFICES AT KILLINEY.

These are situated on the top of a hill a most picturesque position, and are built granite-rubble with red brick dressings first story, and upper is built in half-timb Plans show arrangement. The stables are fit with Messrs. Musgrave and Co.'s, of Belfa best fittings, the sheeting being of teak, and walls tiled. The cow-house is also fitted Messrs. Musgrave, and lighted by electric lig They are from the designs of Mr. Albert Murray, F.R.I.B.A., architect, of 37, Daws street, Dublin, and were erected under his sup intendence.

CHIPS.

Mr. Clement Hughes, assistant surveyor to Aston Manor local board, committed suicide Friday by shooting himself on the lawn in front his mother's house at Woodsetton, Sedgley. ceased, who was 26 years of age, had but recen returned from Australia.

At specially convened meetings of the local bo of Clevedon, Somerset, held on Friday, to expe the reconstruction of the pier-head and carry the contemplated improvements, it was decided invite tenders from five eminent firms (three su gested by the engineer, Mr. Abernethy, and t suggested by members of the board). It was a decided to make the pier complete in every de by the providing of boating steps, a pavilion, & at a considerable additional outlay to that origina contemplated.

A commencement was made last week at Eri Kent, with the erection of the buildings which to be put up for the firm of Messrs. Fraser a Chalmers, marine engineers, who are also the pr prietors of extensive works at Chicago. The s comprises 17 acres.

Mr. Onslow Ford, A.R.A., is at work upon memorial to Percy Bysshe Shelley, the poet, tended for the Protestant Cemetery at Rome. T poet will be represented as he was found after t boat accident, when he was washed ashore near V Reggio.

A new peal of tubular bells has just been erect in the steeple of St. Giles's Cathedral, Edinburg A previous peal of similar bells, supplied by Mess Harrington, Latham, and Co., Coventry, we found to be too light for the position in whi it was placed in the middle of the city, and t peal, from the works of the same firm, is of heavier type, and has a deeper note. It consi of 13 bells, attuned in the key of A flat. The be are suspended, as were the old peal, in a louvr apartment below the ribs of the crown, and s rung from a chamber below by ropes, which c be manipulated by a single person.

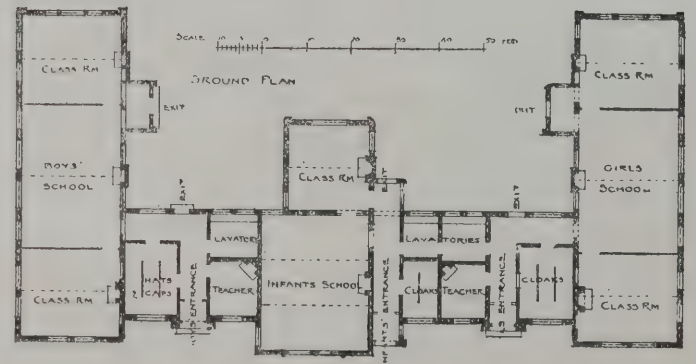
A memorial drinking fountain at Westal Gree Lansdown, near Cheltenham, was accepted as gift to the town last week by the mayor. It h been designed and erected by Mr. A. B. Wall, Cheltenham, is Fourteenth-Century Gothic in sty and rises to a height of 22ft. from the ground.

An organ, erected by Lady Brooke in Lit Easton Church to the memory of her stepfath the late Earl of Rosslyn, was opened on Wednesd week. The organ, which occupies the greater p of the north transept, has been built by Mess Norman and Beard, of Norwich.

: New · Board · Schools :

: Watford · Herts :

AYRES & ARDRON Architects.






Stables & Offices at Killiney
Albert E. Murray architect riba

WAYSIDE NOTES.

NOTHER cathedral competition, and again in America! This time, however, it is British territory. The inhabitants of the edingly prosperous town of Victoria, B.C., are ous of possessing a cathedral, and advertise- ts for a competition have been put before the itectural profession, not only in British mbia, but also in the Old Country. There ld be a liberal response. Premiums of ous sums of dollars equivalent to amounts of , £100, and £50 are offered, and there is no trance fee." Here is a chance for anyone, genius half-stifled by poverty will be able to the freely, and not suffer total extinction for lack of the guinea that is now so frequently anded by competition promoters. The itious pupil may diligently apply himself to task of supplying the Victorians with a able and handsome cathedral, and that with- the necessity for laying out any pocket- ey other than such as is required for divers ts of drawing-paper and the various stretcher- nes, cost of freight, &c. He can get a hand n the office-boy in the evening to "black-in" r which task no better assistant can be found, ong as he keeps the ink within the lines and his nose and cheeks—and I am sure "the rnor" will readily "invest the designs n artistic merit." *Mem.*: "Belt *v.* Lawes," n a few masterly touches—that is, if he does spoil the whole thing.

eriously, the proposed cathedral-church for toria will in all probability be a fine struc- e, such as would be a credit to any town, ne or colonial. Victoria has developed so idly and yet so surely that the inhabitants not be satisfied with that type of Gothic ich we—most likely in great ignorance— gine to be the only wear in the colonies. e present town of Victoria B.C. is, in many ses, a model colonial city. It is free of the gus-like growths that distinguish the towns, pure American soil, that jump into cities in hteen months, more or less. The develop- nt of Victoria has been gradual and solid, and prosperity, therefore, rests on a sound basis. e "booms" and consequent succeeding periods lepression that characterise the Yankee mush- m "city" have never been a feature in toria. Consequently, the visitor to Victoria he present time would find not only that the le and commerce of the place were uniformly rishing, but that there are many really fine ldings in the streets, and that substantial uctures everywhere abound. To be aware of s fact may be useful to the intending com- itor for the proposed cathedral-church, as he y then be on his guard against the delusion t any inferior work will do for a colony, and row his whole energies into the designs.

I should much have liked to have seen "the ench war-ships speed over" the other day, and bsequently to have examined them at anchor. t that they have any great intrinsic beauty ner of outline or detail, seeming, according to awings and general account, ugly monsters ough. But I read that they have one feature nich seems to be a direct descendant from the turesque old galleon. Round the captain's oin at the stern, in several, if not all, of the ssels, runs a gallery or balcony—an appendage t only pleasant and useful to the commanders the ships, but also capable of artistic treat- ent. I believe a similar feature is appended to e or two English men-of-war that have been unched within the past year or so. There is tle hope for the picturesque about the modern nclad, although, for my own part, I am always ady to see beauty of a sort in a monitor, a comotive, or a bicycle, as indicating the honest aptation of means to an end, and embodying spectively expressions of power, speed, and etness. Some little might be done with these miral's, or captain's, balconies round the stern the warship. It was the tiers of open, lcony-like windows round the stern of the ediæval three-decker that gave her an incom- rable picturesqueness.

I have recently been much delighted with the llection of paintings of sea-fights at the Naval xhibition. Many of the pictures show a orious type of vessel, with great towering oops, with tier upon tier of windows—a regular oating architectural façade, that carries one's mind back to the days of Amyas Leigh and Don Guzman de Zoto. Truly magnificent objects must have been some of these early English war-ships and Spanish galleons, and right well have many of the painters caught the spirit of the ships in action, with their broadsides of port-holes, their high carved and gilded sterns, tall masts and flowing sails, half-hidden in the clouds of powder-smoke, and lurid in the flames of some burning enemy's vessel. The sight of a ship of the ancient pattern in full sail is one that later generations can know not. The old English line-of-battle ships—such as the *Victory*, *Marlborough*, and *Royal Sovereign*—in full sail must have been a sight the loss of which the present era has to mourn; but even this cannot have been comparable in point of pictuesqueness with the earlier boats, from Columbus's time upwards. I have seen a training brig of the old type sail out of Portsmouth Harbour. Finer sight on the water I have never seen; but the spectacle cannot be compared to the sailing of the mighty "hearts of oak," let alone to the high-pooped vessels of the Middle Ages plough-ing the Spanish Main.

The Royal Archæological Institute indulged in a little diversion of the "Bill Stumps, his mark" kind, whilst visiting some old Scotch work the other day. On many of the stones of the nave, both internally and externally, of the Church of the Holy Rood, at Stirling, are certain small circular incisions, disposed in the form of a Greek cross. Each circle is about 1in. in diameter, and the marks puzzled the visitors much—so much that we shall perhaps have a "great R. A. I. question," similar to the "Pick-wickian controversy" concerning Bill Stumps' mark, and a similar correspondence between various learned societies, and translations into all the known tongues of the globe, including "Billingsgate." The members of the Congress agreed that the marks could not be masons' marks, although, according to the *Athenæum* report, no true light can be thrown upon the question. I am sorry that I can be of no assistance, although I would venture to suggest that a cross is intended to be represented, and to hint that perhaps they were inscribed on the stones by some pious mason who, believing with good Thomas-à-Kempis that life is signed on all sides by crosses, thought that a few more or less would not matter.

The proposed observatory on the summit of Mont Blanc, to which I recently alluded, has been commenced in earnest, though, as might be expected, with much difficulty. Within a short time of the commencement of operations—the boring of the horizontal tunnel—the work-men became disheartened by the cold and difficulties, and, according to Wednes-day's *Times*, have only been kept to work by the offer of increased pay. Three of the men have had their feet and hands frost-bitten. Snowstorms cause great trouble, and all have suffered much from the cold, which may be believed when snow falls in one night to a depth of 1ft. 8in., and a sheet of ice covers the window of the temporary shelter-hut. No definite intelligence is yet forthcoming as to the depth of the ice and snow covering to the mountain-top; but M. Imfeld, the Swiss engineer engaged on the work, thinks, after the examinations he has made, that the rock would be met with a little below the top, and at no very great depth under the icy covering. At one place he says that the rock can be discovered at the depth of one mètre. M. Eiffel, the French engineer, thinks that the undertaking will not be practicable if the snow and ice are more than 12 mètres deep. M. Imfeld, therefore, is driving a heading into the ice on the north slope of the mountain, where the side is the most abrupt, and will require a shorter length of tunnel to reach the rock. When this has been accomplished, he proposes to bore to the east and west to ascertain whether the original boring has been made in a hollow, and that rock is not to be found on either side. Notwithstanding the difficulties attending the work, the latest reports say that it is progressing satisfactorily. Of the band of men who wished to leave the work, only one has refused to remain on the new terms.

A free-born "Amurrican" citizen gave it as his opinion in the train the other day that it was a mistake to have located the great "World's Fair"—destined to lick creation—at Chicago, and that it should have been holden at New York, in which opinion I agree with him, seeing that visitors from Eu-rope will have to traverse, in round numbers, one thousand miles by rail-way when they arrive in New York, in addition to the ocean voyage. No doubt but what the grandeur of the show—certain to exceed "the greatest show on airth" of the late P. T. Barnum, or it would not be worth much—will repay the extra time and trouble taken to get to Chicago; still, it must have occurred to many, with our American friend, that New York was the proper place. It won't much matter where the show is held to most of us, nor to the fortunate individuals who have time and money always on the hands. Many business men there will be to whom the extra distance may act as a deterrent; but per-haps the Americans themselves will gain, and Chicago be found a more central and suitable position than any in the States. I see that a model of Shakespeare's birthplace is to be set up at the exhibition, an architect having been com-missioned to measure up the "premises"—if one may use such a matter-of-fact term to describe the birthplace of the immortal bard—with a view to their reproduction at Chicago. The feature, if carried out well, should be popular with our cousins.

GOTH.

CHIPS.

The horse block in the High Bullen, Wednesbury, from which John Wesley preached 45 sermons during his 27 visits to the town, has been handed for preservation to the trustees of Spring Head Wesleyan Chapel, by the Directors of the Crown Tube Works, who are building on the site. It is suggested that a statue of Wesley should be erected on the block, which is to be placed in Spring Head Chapel grounds.

A window in the town hall of Kirkwall is about to be filled with stained glass, representing King James III., and a second one will contain Earl Henry St. Clair, with the Lerwick and Shetland coats of arms. Messrs. Ballantine and Son, of Edin-burgh, are the artists.

A cruciform chapel, connected by a glazed corridor with the adjoining mansion, is now being erected from the designs of Mr. A. E. Purdie in the Italian Renaissance style at Hothorpe Hall, for Mr. C. E. de Trafford. The roof to nave and chancel will be semicircular, divided into rich panels, the main divisional ribs springing from ornamental pilasters, the flooring of the nave in Duffy's oak wood blocks, and that of chancel in Italian mosaic. The whole of the joiners' work, including seats, confessional, and other fittings, will be in oak. The high altar and reredos to circular apse of chancel are in Caen stone, alabaster, and marble. The gilt safe *repoussé* work door is by Messrs. Hardman and Co., as are also the stained-glass windows.

A Ford Memorial Hall and Conservative Club is being erected at the corner of East-street and Mill-lane, Bedminster, Bristol. The chief room will accommodate 500 persons, and will have an open timber roof, with ornamental glass windows. The style of the building will be Renaissance, with con-siderable ornamentation where seen from Mill-lane. The walls will be constructed entirely of brick, with freestone dressings. The contractor is Mr. A. J. Beavan, of Bedminster, the architect being Mr. W. V. Gough, of Bridge-street, Bristol.

A cairn at Harelaw, Kinross-shire, was opened on Saturday by Mr. Constable, of Glencraig, when a cist was formed in which was a small clay urn, having a series of five handles projecting from a flange near the rim.

The Corporation of Manchester, who decided three weeks since to demolish the characteristic 18th-century tower of St. Mary's Church, Deans-gate, received, on Friday, a letter from Mr. Henry Boddington, offering to purchase and present to the city, as a free gift, the tower, on condition that it shall stand for twelve months. The Parks Com-mittee visited the site the same afternoon, accom-panied by Mr. Allison, the city surveyor, and unananimously decided to decline the generous offer, and to pull the tower down. The church itself was removed some time since.

The Board of Guardians for Elham, East Kent, adopted last week plans by Mr. Joseph Gardner, of Folkestone, for cottage homes, estimated to cost £1,400.

New business premises are being built at the corner of New-road and the Market-place, Willen-hall, for the Birmingham and Metropolitan Bank, from plans by Mr. B. Baker, the town surveyor.

A parsonage is about to be built at Kenbig Hill, near Bridgend, from plans by Messrs. Halliday and Anderson, of Cardiff.

HOT-WATER ENGINEERING.—XII.

Supply of Hot Water for Baths and Domestic Purposes.

MODIFICATIONS OF THE CYLINDER SYSTEM.

PERHAPS one of the most useful of the modified forms of cylinder apparatus is that in which two reservoirs are used, a cylinder and a tank, both in their usual respective places. The writer has called this a cylinder apparatus for convenience, although it is just as much entitled to be called the tank system; perhaps the Dual system would be more correct, if a proper name is required for it.

Fig. 35 illustrates this apparatus, and one of the first things to be noticed is that the objectionable "third pipe" of the cylinder system, the cold supply-pipe which has to be carried from top to bottom of the building, is almost done away with: it is but a few feet in length, the same as in the tank system. The reason that the cold supply pipe may be taken into the tank with as good results as taking it into the cylinder, will doubtless be obvious to those who have read the articles preceding this. When a tap is opened the cold water will enter the tank, and partly (about half) pass down the secondary return to the cylinder, the other half entering the tank and going to urge the hot water up to the flow-pipe, down which it passes towards the

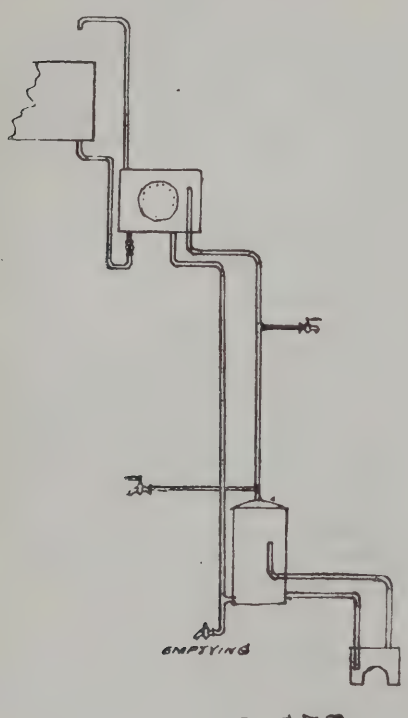


FIG 35

tap. The action is a little complex; but, of course, quite certain and regular, and is plainly shown by the arrows on Fig. 36. The arrows indicate the passage of water from the cold-water cistern when a tap is opened.

This system may doubtless become more in vogue when once the average hot-water fitter grasps the principle. The cost is but little, if any more, as it has to be particularly pointed out that in using two reservoirs, care must be exercised not to have them both of full or normal size: they should be, the two together, of a capacity equal to one of the ordinary size; that is to say, if a 50-gallon cylinder were required for on ordinary cylinder apparatus, then with this dual system the reservoirs should not exceed 25 gallons each. Under these circumstances the cost of two reservoirs does not greatly exceed the one of an ordinary apparatus, and then we save nearly the whole length of the cold-supply pipe, which usually extends from top to bottom of house in the cylinder system, as just mentioned. The fitting up and fixing of two reservoirs of course exceeds that of one, but not very greatly.

In the illustration, Fig. 35, it will be seen that the primary flow and return between boiler and cylinder is carried in precisely the same manner as explained with the ordinary cylinder system. The same sized pipe would be used, the connections and the position of cylinder would be the same also. An emptying service would be needed below the cylinder, the same as in the cylinder apparatus, and as illustrated. All draw-off services must be taken from the secondary flow to insure the element of safety, that is, the feature of the cylinder system. Between the cylinder and the tank is carried a secondary flow and return. The flow starts from a flange affixed to the top of the cylinder, as usual, and

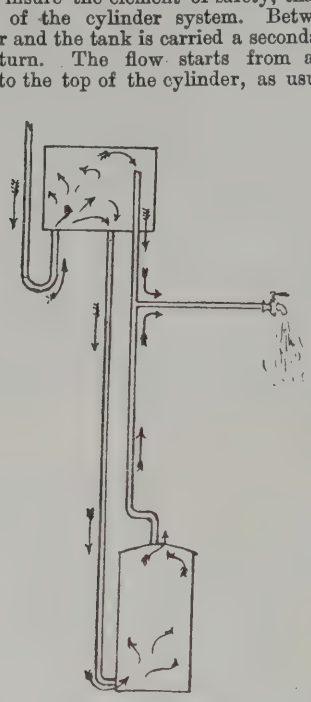


FIG.36

terminates at a high position in the tank, either through the bottom and standing up inside, or through the side, in the same way that a primary flow is connected into a tank. It is necessary that the pipe terminates within about 3in. or 4in. of the top of the tank, so as to be able to withdraw all the hot water without admixture with cold, as was fully explained with the tank system in Paper IV.

The secondary return is brought from the bottom of the tank down to the cylinder, but the point at which it should be connected there requires consideration. It must not be connected into the upper part of the cylinder, as has been recommended with the ordinary secondary return of a cylinder apparatus, for in this case the pipe will rarely contain hot water. It must be treated more as if it were a cold-supply service,

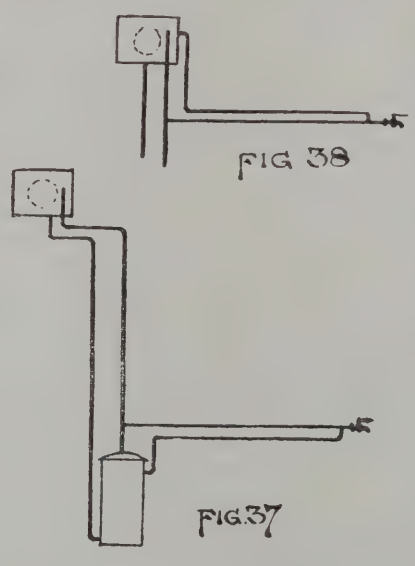


FIG 38

FIG.37

for it fulfils this office when a tap is opened as the arrows on Fig. 36 show, and therefore it is best to carry it in at a low point in the cylinder. The expansion pipe and the cold-supply service are both carried in precisely the same manner as with the tank system, and as illustrated.

If the positions at which the draw-off taps were required happened to be somewhat scattered, it would be necessary to carry the secondary flow in a direction that would come near to them, so as to avoid the necessity of long dra services. (The objections to long, single- draw-off services have been explained.) satisfactory returned draw-off service can effected with this apparatus in the usual any more than it can in the tank system, a or cold water would be drawn through the r portion of the service, as before explained. return was particularly needed to a dra service, the effective way would be to ca back into the upper part of the cylinder, as 37. By this arrangement the hottest water be drawn under any circumstances, the sa in the ordinary cylinder system connected this way. But this method of returning a off service would entail the use of an incon ent quantity of pipe if the tap was a dis above the cylinder.

If there were a tap up near the top o building, and nearer to the tank than the c der, it would be possible to return this dra service into the tank, if desirable and conve This would be done by making the dra service a branch of the secondary flow, minating in the tank at a point equal in hei the secondary flow itself, as Fig. 38. Whe water was circulating it would divide its this junction, some passing up to the tank b route and some by the other, and it would n not which pipe a tap was connected to hottest water would be drawn, so long a fitter used customary care in terminating branches at a sufficient height in the tank.

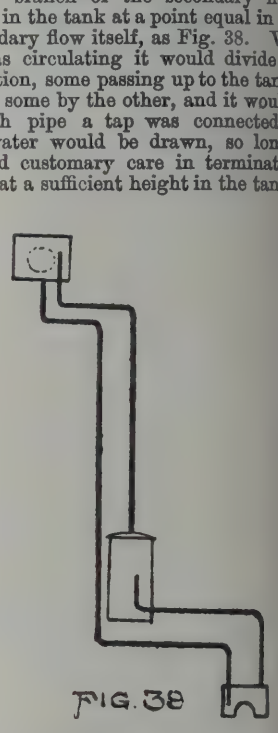


FIG.38

method could be adopted, in precisely the manner, in the ordinary tank system. Of co if only one tap existed up near the tank flow pipe could be diverted to supply it where two taps are upstairs at different p the method now recommended can be use adopted. It is not intended to sugge preference for this two-reservoir apparatus the ordinary cylinder or tank system, for ord purposes; but there are occasions commonly with that make this arrangement a po advantage, in which case no hesitation ne felt in utilising it.

It has to be mentioned that some engi advocate dispensing with the primary r entirely in an apparatus such as we are no cussing; in this instance continuing the secon return to the boiler without connection t cylinder, as Fig. 39. This, it will be seen, severs the cylinder from all return ser leaving it to all intents and purposes like a bulge or enlargement in the flow-pipe. Th an objection to this arrangement—not whe taps are closed and the water circulating n ally, but when a tap is opened. As just tioned, the secondary return of this appa fulfils the duty of a cold-supply pipe when is opened, and cold water passes down it ra to make good the loss so occasioned. Now this arrangement the cold water flows dir into the boiler, and as quickly makes its wa into the cylinder, as a matter of course. must be remembered that the flow-pipe termi a good distance up the cylinder, where the water is located—and this is necessarily a By the other method (Fig. 35) this result w eventually be attained in the same way; b would be much longer, and consequently w not bring about any reduction in the temper

ıe water issuing from the tap until the hot er was actually exhausted. It will bear re- ing that it is far from sufficient that the er in an apparatus heat up quickly. It must rranged that hot water can be withdrawn— hat there is of it, if desired—without admix- with cold. This is not such a simple thing commonly imagined, for it must not be for- en that the very instant a tap is opened, that e instant cold water flows into the apparatus ewhere; and if by any means this cold inflow find a direct route to the tap it will do so, aps without disturbing the hot water in the aratus at all. Commonly it is an admixture ot and cold water that is obtained. This is always objectionable; but at a scullery sink particularly so, as very hot water is always ded here; and it is also objectionable at early rning, when the hottest water is sometimes barely warm; and of course such a result is reverse of practical or workmanlike.

n the next paper the conversion of a tank paratus to the cylinder system will be treated. is is often required, but frequently thought to an expensive undertaking; such, however, is the case.

THE SOCIETY OF ARCHITECTS IN BELGIUM.—II.

HERE being no railway journey to follow in the evening, and the official programme taining but few items, Wednesday week spent Antwerp proved restful, while the buildings ked their best again in the bright sunshine, e during a brief thunderstorm in the after- n. There being an hour to spare after break- t before the first appointment, the members ttered, some visiting the church of St. Jaques, ose tower is bold in outline, and has some d detail, but which otherwise is poor com- ed with those of the churches seen in other ns. Those who visited the Bourse, a modern lding, had, however, a different tale to tell, its interior is rich in the extreme, with much ved ornament, two rows of traceried columns the ground floor, wrought out of a hard grey ne, being remarkable and pleasing, while the neral effect is much enhanced by the good top hting, though the wrought-iron roof is not ried in a very satisfactory manner, and would bably have looked better had less pains been en to ornament it.

At half-past ten one of the officials received e party at the Hotel de Ville, the exterior of ich, and of the old house commonly but roneously known as Charles V.'s Palace, had eady received considerable attention from those o had congregrated in the Grande Place—at at time a busy spot, being used as a fruit and getable market. The members were conducted m room to room slowly, so that each received e attention. In the council chamber, the prin- pal object of interest, from an architectural int of view, was the crisply-carved dwarf reen, said to have been executed by two isoners of the Inquisition in the 16th century; the conscript-room, it was an elegant but use- ss gallery, which possesses no means of access it, supported on Doric columns, having ham- ered brass casings to the bases and capitals, uch more effective and lasting than gilding ould be, and brass fretwork panels to the doors, ith a brass plate behind the fret; in the arriage-room, it was the elegant modern car- ng, while the non-architectural, the canvas all-paintings only just finished by Lagye, aimed and received universal attention and dmiration, representing first a Druidical mar- age, then a Roman one, then the first Christian edding, then that of Philip the Fair with Joan Castille, by which union Belgium came under ıe power of Spain, and lastly the first civil arriage, celebrated in 1796; in the reception- oom, it was the modern carving; and in the Mayor's private room, it was the fine 16th- entury chimneypiece, the delicate frieze to the ado of carved oak Renaissance fretwork, planted n a gilt ground, and, as a matter of practical nterest, a keyboard at the right hand of the Mayor's desk, each key communicating electric- lly with a bell, which would summon some par- cular functionary of the municipality.

Upon leaving the Hotel de Ville, a hurried isit was paid to the Plantin Museum, to which everal members returned for an hour after nch, for more careful study of the restful old ourtyard, which we illustrate to-day, and of the uaint detail of many a cabinet and chimney- piece and staircase newel, to say nothing of the unique wrought-iron pump spout. Two features noticed here, and in many other places, were the supporting of exposed joists and tie-teams by long flat corbels, often out of the same timber as the beam, and the supporting of the hearths of upper stories on a species of fan-vault.

At the Cathedral, M. Baeckelmans, the architect for the restoration, met the members and conducted them over this grand and well-known monument of Mediæval art; but, unfortunately, the work upon which he is now engaged received little but censure from the members, for he has just blocked up the west window to accommodate an organ-loft, and has carried this upon a wrought-iron framing attached to the old stone piers, and with a bold stone base, which would have looked magnificent had it been carried up to do its proper duty, which it would be well able to fulfil, while now the at-present unsightly stanchions are to be cased with carved oak panelling. However, it is not fair, without knowing local circumstances, to criticise too severely, and some of the recently-executed external restoration is sufficiently good to warrant M. Baeckelman's reputation. It is not necessary to dwell upon the well-known lantern, or the pictures, but a word of very hearty praise is due to M. de Bolck for the exquisitely delicate tracery



Wrought-iron Water-spout to Pump, Musée Plantin, Antwerp.

of the new reredos just erected in the first chapel eastward from the crossing in the first northern aisle, as also for the carved figures which adorn it. It is a work of most exceptional beauty. The work of the day concluded with a scramble over the flat stone roof to the aisles, and the immensely, almost unnecessarily, solid timber roof over the vast nave.

Malines, or Mechlin as it is often called, which was visited on Thursday, is a little town well known to the artist and the architect, but not to the general traveller, who passes by its quaint and quiet beauty in his hurry to reach Brussels and the German frontier. Were he to visit it much, however, its great charm of quietude would be lost; but yet the overpowering mass of the great tower, as it suddenly appears in view on turning into the Place after the long walk from the station, would yet even appeal to him, the guidebook-ridden Briton, as something masterly and wonderful, as it made the members pause before proceeding onward. At the entrance to the cathedral they were met by Canon von Caster, acting as deputy of the Cardinal Archbishop, a man of courteous mien and noble presence, and a great archæological enthusiast. He gave dates to the various portions of the building (nave 1280, crossing 14th century, choir early 15th, and chapels and tower of the 16th), and pointed out many things which else would have escaped notice, particularly the fact that the carving of most of the capitals had been destroyed and had been replaced by plaster casts. It was very noticeable that both the carving and the nave caps, even in those which had been left in their original state, and also that in the masterful little spandrels to the north transept arcade, were of a naturalesque and flowing character, in spite of their early date. The great tower, which the members ascended, he showed to be supported almost entirely upon the two flanking walls, while he said that the foundations, resting on hard, fine gravel, were but 3½ mètres deep below the ground, and projected only some 15in. on either side. At its base, the extreme width of the tower from outside to outside of the buttresses is 75 mètres, while the height of the finished portion is 97 mètres. The canon's grandfather, after careful study of old documents, had got out a design for its completion, which he showed the members in his private room, which, if carried out, would have added another 70 mètres, and most beautiful the projected spire certainly would be. At lunch, of which he partook with the members in the best hotel in the town—which could accommodate so many with the utmost difficulty, but did it with an evident desire to please, with rapid serving, though there were but two girls to wait on forty-two hungry men—at lunch the canon expressed a desire to be admitted as an honorary member into the Society, and afterwards he led a slightly reduced following, less by those who wished to sketch, round about the town, first to the well-grouped Convent des Carolites, which we illustrated last week, and which looks in reality even more picturesque, with the canal in front of it, than the illustration shows; and then to the Hôtel Basleyden, with another quaint tourelle and open balcony, and a quiet, well designed courtyard, with grapes and creepers growing over the building, now none other than the "Mont de Piété" or Government pawnshop. A moment's glance was bestowed upon the Renaissance College of St. Rumbolt, which there has been a movement to restore, hitherto resisted successfully by Canon Von Caster, and then a somewhat longer period to the restored, and generally faithfully restored, palace of Margaret of Austria, in the courtyard to which can be seen a curious column with Renaissance cap and base, having an attached shaft, cut out of the same stone, of Gothic proportions and with Gothic mouldings. The Maison du Grand Conseil at the corner of the Place, scarcely received the attention which it merits; nor did the Halle aux Draps, whose architect had been sent to Bruges to study the detail there before designing it. More time was spent in the museum, waiting for copies of some books which the canon had presented to the members, and then, in the walk up to the station, several old houses were seen, among them being the Fisher's House, Salm Inn, the earliest Renaissance building in Belgium, the 13th century bridge close to it, and the church of Notre Dame of little note architecturally, but containing Rubens' picture of the "Draught of Fishes," concluding with a view of the old gate to the town. At the station the members said farewell to their most courteous guide with deep regret, but with the knowledge that he would remain in correspondence with the society.

Friday was devoted to a short trip from Brussels to Louvain, and, in spite of intermittent rain and drizzle (it never really cleared until the evening), proved as full of interest as anything yet undertaken, while the reception met with left nothing to be wished for more. M. Goyers, the famous wood-carver of Louvain, met the members at the station, and led them to the cathedral, an exceptional sight being witnessed on the way in the military funeral of an ex-Prime Minister of Belgium, and it may be mentioned, as an aside, that the guards who formed the escort are as fine a body of troops as anyone would wish to see. Fortunately the main interest of the cathedral lies in the interior, for the outside, though picturesque in grouping, has been much shattered in revolt and war; and even within it is not the edifice itself which claims attention, but the well-preserved fittings there, particularly some most extraordinary ironwork in the hinges, key-plates, and ventilating panels to some cupboard doors in the chapels to the southern aisle. At twelve o'clock, however, before much had been inspected, the members were turned out, and proceeded then to inspect M. Goyers' workshops. There the whole process of wood-carving—wood sculpture of the highest order would be a better name for it—was to be seen; first the sketch, then the small-scale models, then the careful, full-sized clay-model, and then the hewing out and finishing; every figure being instinct with ease and life, and every face of exquisite expression. There also was the white marble chimney-piece, of a beautiful type of French Renaissance, which took the Grand Prix at the Paris Exhibition in 1889; and also, truth sorrowfully to say, much cheap and inferior Gothic work, with details planted on which should be worked from the solid, single orders of shallow chamfers where there should be rich mouldings, and carved

foliage with all the life and beauty lost. No wonder then at the boast that Gothic work could be produced 30 per cent. more cheaply than in England. Even the figures, exquisite as they were in form, showed the mercantile spirit which prevailed when examined closely, for the drapery is all arranged in simple and long, flowing lines, the hands and feet being hidden as much as possible, and all expensive detail carefully avoided.

In the afternoon the senior échevin, M. Fonson; the city secretary, M. Marguery; the archivist, M. Van Even; and the architect, M. Fissche, received the party at the Hôtel de Ville, an excellent glass of champagne—not the first partaken of that day—being handed round. Then the upper hall, with its wood pendent ceiling and rich new chimney-piece, about to be coloured, and some fine new paintings, received their share of merited attention; but the exterior of the building, lovely as it is, was scarcely noticed, owing to the rain. Instead of studying it, the members went on to St. Gertrude, and were well repaid for their trouble by seeing the finest wood-carving in the country—the choir stalls, of richest Gothic detail, just of the time when the Flemish Renaissance was beginning to be felt. Fortunately, by this time the rain had left off, and a splendid bit of quiet colour was witnessed looking down a narrow street from the Halle aux Draps to the Hôtel de Ville and the cathedral. The Halle itself boasts of a magnificent hall, with the floor above supported by a row of massive columns carrying semicircular arches; while the exterior, a somewhat confused mixture of Gothic and Renaissance, having been much altered in the 16th century, boasts of a unique 14th-century arcade with triangular-pointed arches. Further on a brief visit was paid to a richly-traceried brick-fronted house (14th century), and then the visit terminated. The sketching fever, which had taken time to develop, had by Friday fairly set in, and all accessible details of value were jotted down by one member or other of the numerous party.

Saturday, though spent in Brussels, was rather a day of recreation than of architectural interest, for circumstances had caused the proposed visit to the Cathedral of St. Gudule to be cut out of the programme, and the Hôtel de Ville is decidedly lacking when compared with that of Louvain, though the echevins (Messrs. Becquet and André), the archivist (M. Wanters), and the architect (M. Jamar) showed the members every kindness, and threw open to their inspection many rooms not seen by the general public. The principal points noted were the arrangement of the electric lights, sometimes around the cornices, sometimes grouped together in well-designed electroliers, and the exquisite carving of the dado in the office of the Director of Public Works—most of it original, and the rest designed in consonance. In most cases the modern restoration and decoration, supervised by M. Jamar, were excellent, both in design and colouring; but in one room at least the effect was spoilt by the introduction of too much gilt on the electroliers.

No time, unfortunately, could be devoted to the work now proceeding at the Communal Museum, opposite the Hôtel de Ville, which appeared, at a hasty glance, to be in thorough harmony with the rest of this fine and well-known building, for already the party was overdue at the Palace. There most exceptional facilities were given for everything to be seen, it even being particularly requested that members might keep on their hats within the building. The staircase and the ballroom at least are worthy of the extravagant praise bestowed upon them, for they are of mighty proportions, and excellently designed; but they are lacking in colour, for they have never been decorated, and lack the elegance of detail seen the previous day. It was restful, though, to wander through the lofty rooms, and to inspect the marvellously-beautiful furniture and fine Dresden porcelain, which was all, by special order, uncovered for inspection. It was the universal opinion, however, that the sanitary arrangements want immediate attention, for everything is as bad as most similar arrangements in Belgium, and that is as bad as can be. Our Heir-Apparent nearly lost his life once from sanitary defects in an English palace. We do not wish him to suffer again in the same way when on a visit to a friendly sovereign.

In the afternoon a most enjoyable time was spent in inspecting the foundations of the new church to be attached to the Palace at Laeken, which is to be of iron and glass, octagonal, with a conservatory completely round it; the present conservatories and winter garden, and the work proceeding at the Palace, now being rebuilt, for it was destroyed by fire on January 1, 1890. While noting for future use the truthful way in which the ironwork of the glass-houses had been ornamented, the members equally noticed, for future avoidance, the large amount of stucco employed everywhere on a rough brick backing, having a good appearance now at little cost, and so well executed as to be detected as a sham with difficulty, but a sham all the same, and one which will not stand the test of time. The local system of working the mouldings of stonework *in situ* was also noticed, as was also the main cornice of the building, now being put in in wood instead of stone—a curious exception to the general rule to make the new palace fireproof. Mr. Knight, a Scotchman, had acted as guide so far, and then placed the members in charge of the gardener to conduct them through the park; but half a dozen got separated from the rest, and presently stumbled upon a guard of soldiery, who politely conducted them back to where they started from, and, equally politely, intimated that they would be shot down if found wandering there after eight o'clock. By that time, however, they were comfortably seated at dinner at the Hôtel de l'Empereur; and after dinner, as some fifteen of the party were returning home on Monday, several toasts were drunk, the principal being to His Majesty the King of the Belgians, who had behaved with such remarkable graciousness and condescension to them, the ecclesiastical and municipal authorities, who had opened the buildings in their charge to their inspection, and their brother architects in Belgium—men who had shown them great kindness, and whose works would be highly appreciated in the future by all who had now inspected them.

On Monday morning the party divided into two, the smaller number returning to England, being unable to remain a second week, while the majority proceeded to Mons. There they were received by M. Joseph Hubert, the architect of the cathedral and honorary architect of the town, and M. Dosveld, the actual director of works of the municipality. The first point visited was the cathedral, a fine pile erected between 1450 and 1589, entirely according to the original Flamboyant design, save that the tower has never been completed. Much of the tracery is good and unobtrusive, while the internal effect of the lofty nave is excellent with its brick, vaulted roof, the ribs of which are carried right down to the pier bases, there being no caps to the piers or other interruption. In the 16th century a fine Renaissance screen in white marble was inserted in the nave, an engraving of which was seen, but now only a few of the sculptured alabaster panels by Dubiaencq, with which it was adorned, remain, and these are scattered about in various places, most of them forming portions of the high altar and chapel altars, all excellent in composition, though the figures are attenuated. The authorities kindly exhibited their treasures also for inspection, and these included a small cross of the 8th century and a beautiful little 13th-century reliquary of filigree gold and inlaid silver ornament characteristic of the period, exquisitely wrought, while a little illuminated Book of Hours also excited admiration for its well-preserved and beautiful ornament and lettering. A visit to the quaint belfry, with its spire supported and surrounded by small bulbous domes, shingle covered, and, after lunch, to the Hôtel de Ville, with its bold and well-detailed 15th-century front, completed the day in architectural interest, for a considerable walk afterwards only revealed the meanness of the modern work in Hospital and Normal School.

The grandest building seen during the whole tour was the cathedral at Tournai, viewed on Tuesday. Probably it would not appeal so greatly to the ordinary visitor as would the richer cathedrals of other towns; but to the architect it is rich in suggestion, and impressive in the highest sense. Canon Huguet received the visitors on behalf of the Bishop, who was absent from Tournai, exhibiting first the many valuable and beautiful treasures belonging to the cathedral, rarely shown to visitors—wonderful specimens of the goldsmith's art, particularly a unique gold cross, and a cross-shaped reliquary in true Byzantine style, enriched with pearls and precious stones. A chasuble of silk, once worn by Thomas à Beckett when visiting the town, and other richly-worked vest were displayed, of gold thread patterns w on deep crimson velvet. Then the Canon attention to two shrines in silver gilt, and wards traced the history of the cathedral. Romanesque nave is unique in its simplicit grandeur, commenced in the year 1070, varied and richly sculptured capitals, looki if they had been carved but yesterday Canon invited the members to inspec piers of the nave and double aisles, a mos usual feature being the octagonal nook s Then came the crossing and the apsidal septs, with their single narrow aisles, successful and most unique in treatmen which it is best to attempt no descriptio they must be seen to be appreciated, leadin the eye most naturally to the lofty cho mètres from floor to vault, of the fully deve Gothic of the 13th century, standing out i hard grey stone in contrast to the whitened and with a retro-choir of slightly later French in character, with shallow bays to a of much stained glass being introduced. unusual feature, too, is the thickening of main piers to the choir, to strengthen them they began to fail, in the early portion of 14th century, most successfully accomplis and scarcely noticeable, in spite of the aisle v ing being thus thrown out of centre. Exter the cathedral, though noble in mass, fails i grouping, the central spire not rising abov four large flanking spires, but the trefoil he north and south doorways, richly sculpt with figure subjects, are worth notice.

Beside the cathedral, a house in the Ru Paris should be seen, with similar tracery o face to that seen at Bruges, but in stone ins of brickwork; while the pure 13th century ch of St. Jaques is remarkable from the trifo gallery being without the clerestory wind and that of the Madeline is of the simple beautiful type of a country church of the period. The old town gate across the r with portcullis groove and battlements, to b it against intruders, is interesting in its ra Thus the day spent at Tournai was a most en able one, though there had been little on programme.

PLASTERERS' WORK.

THE Worshipful Company of Plaiste having offered the sum of £25 as prize proficiency and skill in plasterers' work, the and Guilds of London Institute is prepare hold an examination in plasterers' work and a crafts, and to award certificates and medals on results of such examination.

The examination will be in two gra Ordinary and Honours.

The Ordinary Grade Examination will co of a paper of questions only. The Honours be both written and practical.

The prizes to be awarded on the result the examination, provided the candidates s sufficient merit, are as follows:—

Honours Grade.—1st prize (Plaisterers' C pany's prize), £8 and Institute's silver me 2nd prize (Plaisterers' Company's prize), £7 Institute's bronze medal; 3rd prize (Plaister Company's prize), £5 and Institute's br medal.

Ordinary Grade.—1st prize (Plaisterers' C pany's prize), £2 and Institute's silver me 2nd prize (Plaisterers' Company's prize), £2 Institute's bronze medal; 3rd prize (Plaister Company's prize), £2 and Institute's bronze me

The examinations will be held in acc ance generally with the rules and regulations the technological examinations of the Institut contained in the programme.

I. Syllabus.—The examination in the dinary Grade will include questions founded the following subjects:—

1. *Limes.*—Names and qualities of var limes used in candidate's neighbourhood. tinction between hydraulic and non-hydra lime. Methods of slaking for various lim Purposes for which each variety is best fit Time of slaking before using.

2. *Sand.*—Various qualities of. Proportio admixture for various limes and purposes. S stitutes for sand.

3. *Hair.*—Use of, and substitutes for.

4. *Stucco.*—Mixing and tempering for ordi and rough stucco, for rough casting, bastard trowelled stucco, for fine stuff, run putty, gauged stuff. Composition and use of each.

Plaster of Paris.—Mineralogical character, nce obtained, and how prepared. Its use n used pure, its influence on lime stucco by ixture. Preparation of moulds for casting n in plaster, wax, sulphur, and gelatine. ing, cleaning up and fixing, running and ing cornices. Canvas plaster, its prepara- s and use.

Lathing.—Size and qualities of laths, sub- ites for laths for fireproof construction or erwise. Preparations of new walls, brick or ie, and of old and discoloured walls.

Cements.—Natural and artificial. Character ements for external and internal use. Mode gauging and using Roman, Portland, Keene's, ian, Mastic, Selenetic, and other locally used ents. Polishing internal work, staining or ing.

Tools used in plasterers' work and allied fts.

Candidates for the Honours Grade will be re- red to pass a written examination and to pro- e examples of their practical work.

(1) Written Examination.—The written ex- ination may include more difficult questions the subjects of the Ordinary Grade Examina- n, and, in addition, a knowledge will be uired of:—

Plastering.—Causes of hydraulicity of certain es, and how hydraulicity may be imparted to es not possessing it. Test of quality for limes cements (excluding tenacity). Quantities of terial required for covering a given area. ting out ceilings for applied ornaments. Running a moulded oval, having its major s one-third greater than its minor. Plastering umns with an entasis on brick core, or studded l lathed core, mitring cove 5ft. deep octagonal plan.

'Sgraffito Work.—Description of. Prepara- n of coloured ground work. Pigments required coloured grounds generally, and for external rk. Methods to be employed for skimming t in small and large works. Pouncing, ting up, and clearing out. Process with lti-coloured groundwork.

Modelling in Stucco.—Material required for undwork; for finishing coat. Description of served examples of modelled work, internal or ernal, in candidate's neighbourhood or else- ere.

Other Processes, &c.—Preparations and pro- ses for indurating plaster of Paris. Piece ulding from high relief and from the round. sso-work. Scagliola: how prepared and ished. Gilders' composition or "compo." rton pierre and analogous compositions in which ster is used for inferior decoration.

(2) Practical Work.—The candidate will o be required to execute during the year pre- ding the examination, and to forward the same London (carriage paid) a week prior to the amination, an original specimen of his work, hich shall not exceed 3ft. by 3ft. by 1ft. in mensions.

The specimen may be an example of:—

1. 'Sgraffito work.
2. Modelled stucco.
3. Piece moulding with cast from same not eaned off.

Drawings by candidates of old ornamental rk in stucco, with name of place where found, ay be forwarded with specimens of practical rk, and will be considered in the award of izes.

III. Full Technological Certificate.—A ovisional certificate will be granted on the sults of the above examination. For the full chnological Certificate in the Ordinary Grade, ndidates will be required to have passed the cond Grade Examination of the Science and rt Department in Freehand and Model Draw- g; and for the full certificate in the Honours rade, they will be required to have also passed elementary modelling.

III. Works of Reference. — Rivington's Notes on Building Construction," Parts II. d III. (Longmans); G. R. Burnell's "Limes, ements, and Mortars" (Weale's Rudimentary ries, Crosby Lockwood and Son, 1887); W. ichaelis' "Die Hydraulische Mörtal" (Leipzig, 69); "Portland Cement," H. Reid (Spon).

The first examination will be held on the ening of Wednesday, May 4, 1892, provided a fficient number of candidates present them- lves. Candidates should send in their applica- ons on or before March 26, 1892, to the nearest local secretary, who will forward them to the Offices of Examinations Department of the Institute, Exhibition-road, London, S.W.

THE LONDON CARPENTERS' STRIKE.

THE London Master Builders' Association have refused the offer by the Board of Conciliation of the London Chamber of Commerce to arrange another conference between the Association and the United Trades Committee of Carpenters and Joiners. Mr. Henshaw, the secretary of the Association, in his letter to the Chamber of Commerce, says:—"Having already had three conferences with the men the committee cannot see that any good would result from another meeting. My committee made offers of certain concessions which, as they were not accepted (but were met by the aggressive step of striking more firms), were subsequently withdrawn. I am further instructed to point out that this strike was forced on by a minority of the men, and the whole of the summer months having been wasted at a great loss, the employers feel it more than ever necessary to resist the unreasonable demands put forward." Five additional firms, however, have this week conceded the full terms of the memorial, making 55 in all. During the present week the United Trades Committee have received about £400, including the following sums from other trades:—A second donation of £70 from the London Society of Compositors (making £100 in all), £50 from the Railway Servants' Union, £25 from the Amalgamated Tailors, £20 from the Bricklayers' Union, ten guineas from the Glass Blowers, £10 from the Coachmakers' Society, £7 10s. from the West End French Polishers, and £5 from the Bakers' Union. The amount paid all round for the past fortnight has been 9s. per head per week, and the same will be paid again on Friday. At the London County Sessions, on Monday, Thomas Young and Richard Arscott, carpenters, who were convicted at the last Sessions of "besetting" the foreman to Mr. Bridgman, of Brownlow's-mews, builder, were brought up for judgment. Sir P. H. Edlin ordered them to enter into their own recognisances of £20, and to find two sureties of £10 each to come up when called upon.

CHIPS.

A Volunteer drill-hall is about to be built at Bridgend, from plans by Mr. P. J. Thomas, of that town. It will be castellated in character, will be faced with local stone, and Bath stone for dressings, and will provide a clear space for drills of 60ft. by 45ft.

A new police-station is about to be built in Gayfield-square, Edinburgh, from plans by Mr. Morham, city superintendent of works. The building will be Classic in character, and will cost £2,500.

A handsome new chapel, dedicated to St. Francis, has been erected over the vault containing the remains of the late Sir Francis Turville, V.C., by his widow, the Baroness Lisgar, in St. Mary's Church, Bosworth, Hull. A tomb with a recumbent figure of Sir Francis is placed in the rear of the chapel facing the altar. The chapel is furnished with stained-glass subjects in the tracery windows, some by Messrs. Hardman, of Birmingham, and the others by Messrs. Mills, of London. The style of the chapel is Early Decorated, and in keeping with the church, which was also designed by Mr. A. E. Purdie.

At the Barnstaple Bankruptcy Court, on Friday, Robert Taylor Hookway, builder, of Bideford, was further examined in reference to his dealings with a bank, and the case was then adjourned until the October Court.

In the case of the application of Edmund James Gorham, of Sevenoaks, builder, for a discharge in bankruptcy, the order has been suspended by the Registrar for six months.

A Wesleyan chapel at Eastgate, near Stanhope in Weardale, was opened last week. Mr. J. W. Taylor, of Newcastle-on-Tyne, whose designs were selected in competition, is the architect, and Mr. George Race, of Westgate, is the contractor. The chapel will be Early English in style, will measure internally 40ft. by 25ft., and will be built of Toru Law stone, with Dunhouse stone dressings. Accommodation is provided for 150 persons.

Two brothers named Wallwork, cabinet makers, living in Upper Jackson-street, Hulme, Manchester, returned home on Sunday night drunk, and the younger, Harry, stabbed his brother to the heart with a chisel, causing instant death. He has been committed for trial on a charge of murder.

Building Intelligence.

Bodmin.—The memorial-stone of the new Public Rooms at Bodmin will be laid by Lord Robartes on Monday next. The new buildings are rapidly rising into prominence on Mount Folly-square. The design was obtained in competition among the architects of Devon and Cornwall, and Mr. Octavius Ralling and Mr. Lewis Tonar, of Exeter, were jointly the authors of the selected design. On tenders being invited, that of Mr. Sampson Trehane, of Liskeard, was accepted, and he is now carrying out the work; the building costing just over £3,000. The accommodation is obtained on basement, ground, and first floor. In the basement are a drill hall, 40ft. by 26ft., a kitchen, stores, furnace-chamber, and rooms to be let as office or business premises. On the ground floor is the main hall, 80ft. by 40ft. On the first floor is a small hall occupying the space over the vestibule and cloak-rooms, being 35ft. by 20ft., which may be used either separately or in conjunction with the main hall. The main body of the work will be of local stone dressings of Hamhill stone, and Luxulyan granite for the base. Internally the work will be of pitch-pine varnished. The feature of the Mount Folly elevation is a gable, having the founder of Bodmin (King Athelstan) carved in a circular-cusped and foliated panel, as represented on the seal of Bodmin.

New Opera House, Southport.—This building, which is now practically complete, was opened on Monday, the 10th inst., the contractors being Messrs. R. Neill and Sons, of Manchester, and the cost of same, exclusive of site, about £20,000. Mr. Frank Matcham, of London, is the architect. The elevation to Lord-street is of mixed Flemish design, with Moorish octagonal turrets surmounted by domes and finials, made by Fambrini and Daniels, of Lincoln, in their imperishable red concrete masonry. The façade is of red brick, artistically relieved with modelled art panels, emblematic of music, poetry, art, and drama. These, together with the moulded cornices, stringcourses, animal grotesque corbels, scroll work to gables, &c., are of Fambrini and Daniels imperishable red concrete. The turrets act as ventilators to various parts of the building. The whole of the screen and portraits, together with the other art productions and dressings of the building, have been modelled and produced in imperishable red concrete masonry by Messrs. Fambrini and Daniels, of Excelsior Works, Lincoln.

Sligo.—A branch of the Bank of Ireland was opened last week in Stephen-street. It is in the Italian style, from the design of Messrs. Miller and Symes, Dublin. It was built by Mr. Clarence, of Ballisodare, at a cost of about £6,000. The exterior walling is chiselled in Ballisodare limestone in coursed and jointed ashlar, with rock-faced basement. It is three stories in height. The ground-floor is devoted to the business department, and the upper portion is the residence of the agent. The street façade is severe in style. The doors and window-dressings, as well as the strings, cornices, &c., are of Mountcharles grit. In the public office the walls and ceiling are treated with dentilled cornices and floriated modillions. The office-fittings, counter, desks, &c., were executed by Mr. Clarence.

Sir Arthur Blomfield, A.R.A., has undertaken to visit Swansea for the purpose of making an inspection of St. Mary's parish church, with a view to furnishing a report to the vicar as to the practibility of restoring the fabric, or the erection of a new cathedral church on the present site.

The ceremony of unveiling the statue of the late Mr. James White, of Overtoun, a well-known Glasgow merchant, was performed on Monday by Sir James King. The statue has been erected on the site of the Old Barony church in Cathedral-square, Glasgow, and is the last work of the late John Mossman, of that city.

Mr. W. L. Micks, Local Government Inspector, held an inquiry on Wednesday week under the Irish Labourers Acts at the workhouse, Dundalk, into the scheme proposed by the board of guardians for the erection of 21 cottages in the electoral divisions of Carlingford, Castletown, Darver, and Rathcor. The formal evidence as to the compliance with preliminaries was given by Mr. Cahill, the architect to the board of guardians.

ARCHÆOLOGICAL.

Roman Villa at Twyford.—The members of the Hampshire Field Club arranged a supplementary excursion on Thursday, the 20th inst., to view the remains of the Roman villa which has been discovered on land on the east side of the picturesque village of Twyford, and to which allusion was made in our issue of a fortnight since, p. 240. The party included Mr. Stevenson, the director of explorations at Silchester, Mr. T. W. Shore, and Mr. William Dale, the hon. organising and general secretaries, being the conductors for the day. Mr. Shenton, the owner of the site, has arranged close by a museum containing many interesting things found in connection with this villa, including large flints and taps used in construction, nails, and other implements in iron, and bronze hooks, flanged bricks, and oyster shells. The find of coins is at present limited to two small brasses, not in a good state of preservation. One is a Claudius II. (268-70), and the other a Valentinian I. (364-75).

ARCHITECTURAL & ARCHÆOLOGICAL SOCIETIES.

Public Sanitary Inspectors' Association.—The annual summer meeting of this asssociation took place on Wednesday at Hastings. Mr. Hugh Alexander, chairman of the association, gave an address in which he referred to the origin of the association, its objects, and progress. Its objects were to obtain for sanitary inspectors a legal status, to make their appointments permanent, and, among other things, to amend the law in several matters in the interest of the public health. Referring to recent legislation, he said the Government proposal to give to sanitary inspectors that lease of office which was their just due had unfortunately not received Parliamentary sanction. The words "sanitary inspectors" were omitted from the Act, although like privileges were bestowed upon medical officers of health. Dr. A. Scardyn Wilson, Medical Officer of Health for Hastings, then gave an address on "The Sanitary Advantages of Hastings." A cordial vote of thanks was given to Dr. Wilson for his paper, moved by Mr. E. Tidman, M.S.A., and seconded by Dr. Tripe. Dr. G. Reid, president of the Staffordshire branch, proposed a resolution in favour of a more secure tenure of office for sanitary inspectors being provided in the Public Health (London) Bill. A visit was afterwards paid to the sewage precipitation works at Bo-peep, the waterworks, the St. Leonard's Gardens, and the refuse destructor.

CHIPS.

Messrs. Holme and Green, contractors, Liverpool, have given their undertaking that the Grand Pavilion now being erected at the shore end of the pier at Rhyl will be ready for opening on Saturday, Sept. 12. The Pavilion is the largest on the North Wales coast, having seating accommodation for 2,842 persons, besides the stage, which will seat 250. Messrs. Bishop and Sons, London, are now erecting the grand organ of the Manchester Jubilee Exhibition of 1887 within the pavilion.

Alterations have been made to the Vestry-hall, Battersea Rise, and special attention has been paid to the ventilation, the extraction of the vitiated air being effected by Messrs. Robert Boyle and Son's latest improved patent self-acting air-pump ventilators, and fresh air admitted by their improved air-inlets.

Messrs. W. H. Lindsay, Neal, and Co., have removed their offices from South Wharf to 15, North Wharf, Paddington, W., adjoining their girder works.

The members of the Junior Engineers' Society visited Darlington on Friday, where the leading works were placed at their service for inspection.

Mr. John Murdoch, C.E., Ayr, has been appointed to carry out the work of building a new inner wall in South Harbour-street, Ayr. The wall will extend from the New Bridge to a point opposite the Queen's Hotel.

A serious accident, involving the death of one man and injuries to another, occurred on Wednesday afternoon in Middlesex-street, Aldgate, better known as Petticoat-lane. Some building operations are in progress at the rear of Garden-place, and a wall at the corner of that thoroughfare and Middlesex-street collapsed, being forced apparently forward by the further excavations of earth deposited against it. Andrian Sanson, of Finchley, was greatly injured, and Judah Cohen was killed.

TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the Building News, 332, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

Cheques and Post-office Orders to be made payable to J. Passmore Edwards.

TERMS OF SUBSCRIPTION.

One Pound per annum (post free) to any part of the United Kingdom; for Canada, Nova Scotia, and the United States, £1 6s. 0d. (or 6dols. 30c. gold). To France or Belgium, £1 6s. 0d. (or 33fr. 30c.) To India (viâ Brindisi), £1 10s. 4d. To any of the Australian Colonies or New Zealand, to the Cape, the West Indies, or Natal, £1 6s. 0d.

ADVERTISEMENT CHARGES.

The charge for Competition and Contract Advertisements, Public Companies, and all official advertisements is 1s. per line of Eight words, the first line counting as two the minimum charge being 5s. for four lines.

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Situations.

The charge for advertisements for "Situations Vacant" or "Situations Wanted" is One Shilling for Twenty-four Words, and Sixpence for every eight words after. *All Situation Advertisements must be prepaid.*

Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page advertisements and alterations in serial advertisements must reach the office by Tuesday Morning to secure insertion.

NOTICE.

Bound volumes should be ordered early (price Twelve Shillings each), as only a limited number are done up. A few bound volumes of Vols. XLI., XLIX., L., LI., LIII., LIV., LVI., LVII. LVIII., LIX., and LX. may still be had, price Twelve Shillings; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

Received.—H. S. and F.—E. C. F.—H. H. S. Co.—S. L. Co.—F. R. D.—M. Bros.—C. T. and Co.—B. of H.—C. W. and Co.

Correspondence.

NO REFRESHMENT NEEDED BY THE A.A.

To the Editor of the Building News.

Sir,—I am sure that all members who joined the Architectural Association this year would be sorry if some remarks in the admirable account which you published last Friday of our wanderings in Shropshire should be misunderstood as expressing any discontent on our part with the reception we met with at the various houses visited.

Our gratitude, on the contrary, is due to those generous owners who not merely tolerated with patience and good humour a party of thirty strangers rambling over their houses at will, but in more than one instance welcomed us as friends, and accepted the infliction as a compliment.

The hero of the lettuces in particular showed himself especially desirous to do all he could for us, and the slip of producing them unwashed was evidently due to aberration of mind, consequent upon over-anxiety to be hospitable under the difficult circumstance of having only just moved into the house with a few impedimenta to prepare it for his family.

It is true that on rare occasions in previous years the members of the excursion have been entertained at luncheon or tea by the owners of places visited; but—and it may be said without ingratitude to those hospitable people—such entertainment is never expected or wished for.

I shall be much obliged by your finding room for this letter in your next number.—I am, &c.,

Frank Baggallay.

ARCHITECTURE: A PROFESSION OR AN ART?

Sir,—University Freshmen, and even University Dons, for they need not necessarily be excluded, imbibe, through a truly devious cou of training in logic, the vicious mental habit substituting verbal casuistry and paradox for plain paths of truth, which in treatises on lo would be formally termed specific cognitio The question above, if question it be, fai examples the point at issue. Of the quest itself, in the form it stands, I could never ma head or tail, nor, I should think, anybody e It played a lively little game in the columns the *Times*, hare-and-hounds like, and, so far a am aware, nobody was the wiser for it. At a rate, it certainly proved the statements form lated above. The question—for a question certainly is, and a serious one—will find it fully answered in the four following propositio which I will formulate by way of a rescript:-

1. Architecture is a profession.
2. Architecture is an art.
3. Architecture is an artistic profession.
4. Architecture is a professional art.

Which, I think you will admit, fully cov the ground.—I am, &c.,

Chas. R. Guy Hall

13, St. Alban's-road, Kensington, W.

Intercommunication.

QUESTIONS.

[10607.]—**Velocity in Circular Pipes.**—Be Denton gives the following formula for finding velocity in circular pipes:—

$$V = 55\sqrt{R \times 2H}$$

when V = velocity
R = hydraulic mean depth
$= \frac{1}{4}$ dia. in circular
H = fall in feet per mile.

Using this formula, how does the different velocity the degree of fulness of the pipe appear?—Velocity.

[10608.]—**Heating Houses.**—What is the system of heating private houses? I am recommer what is called the high-pressure system which is scribed as a continuous coil of pipes 1in. diameter, w forms the boiler, and is continued in any requ direction returning to the fire without any escape w ever, a vertical pipe being fixed above any of the c pipes fitted with a screw plug in which the wate poured as required. Is not this a dangerous sys liable to explode at any time? What becomes of expansion when the water is turned into steam?—Hea

[10609.]—**Warehouse Floor.**—Will any of readers kindly inform me as to the simplest manne trussing an old country warehouse floor to prevent sagg The area covered is 70ft. by 29ft. 6in., and the wood be are 12in. by 10in., and about 3ft. 6in. centres. A bea the centre running the whole length, supported columns, would be in the way. It is intended to let existing beams remain.—Support.

[10610.]—**Furnace-Room.**—Subscriber would glad to know the best way of economically constructi furnace-room, the floor of which will be 6ft. 6in. b level of ground. The water level on site is about below ground level, and as there is no possible wa draining the ground, the walls and floors must of nece be made waterproof.—An Old Subscriber.

[10611.]—**San. Inst. Exam.**—I wish to work u Sanitary Inst. Exam., and should be much oblige anyone who has passed would inform me what book obtain, and cost of same?—Student.

[10612.]—**Sewers.**—Are local authorities under obligation to provide sewers of sufficient depth accommodate drains from ordinary basement level Westminster.

[10613.]—**Italian Renaissance.**—Would reader advise a country student as to the best book Italian Renaissance architecture?—Palladio, jun.

[10614.]—**Sewage Drain.**—Will friends kindly their opinion on the following points:—1. Is it pos to give a sewage drain too much fall? A short time I was told of a drain that, altered to a less fall, ca sand away better, the supposition being that with greater fall the water passed away too rapidly and lef sand behind. 2. As a question of expense is it absol necessary to provide a ventilating shaft for drain on pool side of disconnecting trap to w.c.? The lead soil would be continued full size to the roof. The connection and inspection chamber, with full-size inlet, would be about 15ft. from foot of soil-pipe. position being the best for the possible future conne of a closet on the ground floor, would there be danger of the drain gas passing the disconnecting and if it did, would it not pass away through the soil without doing much harm? With the minimum drain-pipe consistent with efficiency and a three-g flush of water, would not the air in drain be cha pretty well every time the closet was flushed? A inlet could be fixed to cesspool end, and if neces another disconnecting trap close to cesspool. The would be about 60 or 70 yards long.—J. H.

REPLIES.

[10604.]—**Weights and Measures.**—Send p order for 2s. to Eyre and Spottiswoode, Fleet-street, for: 1, Weights and Measures Act, 1889, 2, Examination of Inspectors, Notice to Candidates, Heads of Examination, 2d; 3, Model Regulations regard to Inspectors and Inspection, 1s. 6d.—R. Wat

LEGAL INTELLIGENCE.

Claim for Extras.—At the Sussex Assizes on the 13th inst., an action was brought by Charles Hill, builder, of Gerard-street, Brighton, against George Stephens, of Ditchling Rise, Brighton, to recover £274 8s. 2d. for work done and materials supplied. The defendant put in a counter claim for £200. The amount claimed was the balance of an account for work done and materials supplied in building two houses. The defence was that the houses were to be built for £300, and that the plaintiff's charges were excessive. The defendant also alleged that the houses were not built in a workmanlike manner, and were not fit for habitation. For this he claimed £200. Plaintiff stated that he built two houses at defendant's request. After the work had been started the plans were altered, and he did extra work for the defendant. The work he executed cost considerably more than £300. There was no contract. Mr. Parnacott, surveyor, and Mr. George Holloway, builder, stated that it was impossible to build the houses for £300. Defendant said he showed plaintiff a plan, and asked him if he could build the houses for £300, and he said he could and would do the work to his entire satisfaction. The jury found that there was no contract, and judgment was given for plaintiff. The question of value then arose, and it was decided to refer it to arbitration, together with the claim by the defendant, the arbitrator being Mr. Murphy.

Workman's Claim for Loss of Time.—Mr. Wemberg, of Motley-street, Haggerston, cabinet maker, was summoned at Worship-street Police Court last week by Edward Wood, of Ponderson's-gardens, for the sum of 11s. 4d., wages claimed to be due. Mr. Thompson appeared for complainant, on behalf of the Cabinet Makers' Union, and stated that his client contracted to make a cabinet for £3 17s. 6d., the defendant to supply all the materials. The complainant's case was that he had been kept standing for materials, and had lost 17 hours of time, for which he claimed at the rate of 8d. an hour. It was admitted that he had been paid the amount of the contract. Mr. Montagu Williams said that the complainant had received all that he had contracted for, and anything for loss of time would be a subject of civil action. The complainant's remedy was in another court. The summons was dismissed.

In Re Mackenzie, Maryport.—The statement of affairs filed by A. Mackenzie, builder, Maryport, shows that the total liabilities are £13,275, of which £1,657 will rank for dividend, the deficiency being £975. The debtor alleges as the cause of failure, "Heavy losses through the depreciation in value of property at Maryport, heavy loss on Maryport Baptist Church contract, and losses on farm." The Official Receiver says debtor commenced business as a builder and contractor in 1872, with a capital of £120, and as a farmer thirteen years ago, entering on his present farm at Allerby in 1886. He was also a partner in the Dearham Pottery, which, proving unsuccessful, has been discontinued, and the creditors have been paid in full, but the dissolution has not been gazetted. No less than £11,571 5s. is owing to secured creditors, the properties mortgaged being cottage and house properties in or near Maryport. Debtor had no proposal to make, and has been adjudged a bankrupt.

Within the last few weeks the wood pavement has been removed from the carriageways of King Edward-street, E.C., Billiter-street (part of), Aldgate (part of), and St. James's-place, S.W., and these streets are now paved with compressed asphalte, the material used in each case being that of the French Asphalte Company.

The extension of the Leeds Infirmary, which is nearing completion, is being warmed and ventilated throughout by means of Shorland's patent Manchester stoves, those in the large wards having descending smoke-flues, and those in the smaller wards ascending smoke-flues, all being supplied by Mr. E. H. Shorland, of Manchester.

A memorial tablet has been placed in Acock's Green Church, near Birmingham, by the friends of the late Mr. J. F. Swinburne, J.P., from the design and under the superintendence of Mr. J. A. Chatwin, architect, Birmingham. The work is carried out in carefully-selected Derbyshire alabaster, and the details are of the most delicate character. The framework is elaborately canopied and crocketed, rising from a richly-ornamental mould which serves as the base, while at each side of the tablet proper are canopied niches inclosing figures of angels in full relief. The upper portion is divided into five canopies, the centre one, which is surmounted by a cross, being higher than the others. Immediately under this the arms and crest of the deceased gentleman form a centre for the inscription, which is deeply carved into the surface. The work has been erected under the personal supervision of the architect by Messrs. Jones and Willis, of Birmingham and London.

STAINED GLASS.

Bombay.—Messrs. Charles Bussell, Gibbs, and Co., are now completing for shipment 12 clerestory windows for the council chamber of the new Municipal Buildings, Bombay. The design is geometrical, with rich borders, and foliated pattern in the heads, and in the centres are medallions with shields, bearing the city arms. They have also sent a four-light window, divided by stone transoms into three panels, for the council chamber. This window is very rich in character, with foliated design in heads and border. The top and bottom panels have, in the centre, shields with devices taken from the arms of the corporation, and in the centre panels are full arms of the city with motto, "Urbs primus in Indus," with supporters on either side; the arms are also repeated in the tracery. These windows have been specially designed with regard to the strong Indian sun. They have also sent a large number (some three thousand) of small quarry and rondel panels for the tympani of doors to the various offices in the building. In addition to this, they have now in hand a large number of tracery lights for the tower, arcades, and entrances, all in rich foliated and heraldic patterns.

WATER SUPPLY AND SANITARY MATTERS.

Middleton.—Mr. H. Leonard Hinnell, Assoc. Mem.Inst.C.E., Proctor and Hinnell, civil engineers, Bolton, has been engaged by the corporation of Middleton to design a main drainage scheme, and carry out the necessary works for intercepting the sewage of the borough from flowing into the river Irk, a tributary of the Irwell, and also to prepare a scheme for the treatment of the sewage of the borough and adjoining districts at the outfall. The same firm are at present carrying out sewage disposal works for the corporations of Haslingden and Rawtenstall.

CHIPS.

The Manchester Corporation are carrying out an extensive system of sewage disposal. The contract for the precipitating tanks, covering an area of 11 acres, has been given to Mr. Geo. Bell, contractor, Tottenham.

The new recreation hall for the Young Men's Society, in Great Crosshall-street, Liverpool, is rapidly approaching completion. The building has been planned and designed by Mr. Frederick H. Peate, architect, of 11, South Castle-street, Liverpool, and Mr. Edward Blackburn, builder, of 5 and 7, Keble-road, Bootle, is carrying out the work.

Messrs. J. B. Joyce and Co., of Whitchurch, Salop, have just erected a large quarter-clock in Lichfield Cathedral, which shows the time on two dials, one fixed in the nave of the cathedral. The clock is adapted to chime to sets of quarters—the Cambridge quarters on four bells, and the ding-dong quarters on two bells. By turning a lever either of the quarters can be used, or the hammers entirely thrown out of gear. This is the ninth cathedral clock Messrs. Joyce have made.

Alterations have been made to the Public Hall, Petworth-park, embracing the ventilation, which is now carried out on the Boyle system, the latest improved form of the self-acting air-pump ventilator being adopted for the extraction of the vitiated air.

A new dress warehouse in Stanningley-road, Leeds, was formally opened on Friday. It is four floors in height, and measures 60ft. by 36ft. The frontage is of local bricks, with stone dressings. The chief contracts, those for bricklaying, stone masonry, and joinery, have been carried out by Mr. Joseph Walker, of Leeds.

The Dowager Lady Williams-Wynn laid on Tuesday the foundation stone of the memorial church in the township of Brithdir, in the parish of Llanrhaiadr-yn-Mochnant, to be erected in memory of Bishop Morgan, who, while vicar of the parish three hundred years ago, "finished his great undertaking of translating the Bible into the Welsh language." The site is half-way between Llanrhaiadr and Llanfyllin, and the church has been designed by Mr. W. H. Spaull, of Oswestry, diocesan architect.

The Worcester board of guardians have adopted revised plans by Messrs. Rowe and Son, of that city, for workhouse schools to be built at an estimated cost of £6,750.

The Jubilee of the establishment of the Ordnance Survey Department at Southampton is being celebrated there during the present week. It was determined to move the Department to Southampton after a great fire in London in 1841.

On Monday the first sod of the drainage scheme about to be carried out by the Soothill Nether Local Board was cut by the chairman of that body. The engineer of the works is Mr. Malcolm Paterson, C.E., of Bradford, and Mr. Clarke, of Sheffield, is the contractor. The cost will be £12,500.

Our Office Table.

The special committee appointed by the Liverpool Corporation to consider and report on contracts have submitted their conclusions. It has not been proved to the satisfaction of the committee that contractors have unfairly dealt with their employés as to wages, or the undue introduction of apprentices. The committee consider that most evil has resulted from the universal practice of accepting the lowest tender—a conclusion that will meet with hearty and general approval. They found great difficulty in defining what was meant by "sweating," but accepted as a definition of a fair wage "not less than the minimum wage recognised by trade-unions, and for not more than the maximum hours." This is a fair and intelligible interpretation, agreeing closely in substance with the requirements laid down by the London County Council, who stipulate for "the standard rate of wages, and such hours as are generally accepted in the respective trades."

The fourth annual exhibition of the Yorkshire Union of Artists, opened at York on Monday, marks a considerable advance on previous years. A fresh contingent of painters have sent in contributions, and the rejections numbered over 150. All the artists whose works are hung are connected by birth or residence with the county of broad acres, and the list is headed by the P.R.A., who sends a portrait of the late Sir Richard Burton, well known by reproductions. Mr. E. Armitage, a native of Leeds, shows the "Woman Kissing the Hem of Christ's Garment," exhibited at Burlington House half a dozen years since. Mr. J. Thomson Dunning shows "Her Treasures," and Miss Edith Hudson, of Bradford, "The Executor." Other works of interest are "The Ouse from Lendal Bridge," and "Potato Gatherers," both by Mr. R. Jack, portraits by Mr. M. C. W. Flower, Mr. Eddison, and Mr. F. Suddards, and landscapes by Mr. Arnold Priestman, R.B.A., "The Head of the Bay," and Mr. Stead, "The Silvery Wharfe." Among the few architectural drawings those by Messrs. W. H. Thorpe, of Leeds, George Fall, and W. J. Boddy deserve a passing note.

The Senator Pietro Rosa, the excavator of the Palace of the Cæsars, and the most widely-known archæologist in Rome, died last week on the scene of his greatest achievement, the Palatine Hill, in the house built for him by Napoleon III. Among his earlier discoveries were the identification of the site of the Temple of Diana, on Lake Nemi, and that of the battlefield on the Allia; while he laboured hard to show that the villa of Horace was situate near Rocca Giovine, and not on the accepted site on the Digentin. His topographico-archæological maps of Latium were unfortunately never completed. From 1863 till 1870 he was intrusted by Napoleon with the excavations in the Farnesian Gardens, and he was wisely retained at his post by the Italian Government, who appointed him also Inspector General of Antiquities and the Fine Arts in the Roman province, and Keeper of the Archives of the Palatine. Of recent years the active work of excavation has been carried forward by younger men, Fiorelli and Lanciani. Rosa, who had grown very feeble of late, has passed away at the age of 71, and is buried in the Campo Verano, on the verge of the Campagna, whose past he did so much to disclose.

A representative collection of architectural ornament and sculpture is being formed for the Museum at Lucknow by Mr. Edmond W. Smith, of the Archæological Survey of India. Some of these are actual specimens, but others are plaster of Paris casts, of which duplicates ought to be procurable at a comparatively slight expense for the Indian Museum at South Kensington. The casts already prepared for the Lucknow Museum include numerous illustrations of the ornament used by Akbar in the 16th century in embellishing his buildings at Fatehpur Sikri, as well as many examples of the elaborate details in stone and stucco from the Hakim's quarters and Birbal's house in the same village. Liberal grants by the Public Works Department and the museum committee have enabled Dr. A. Führer, the curator, to finish the excavations of the Kankalf Tila at Mathura. The results of his work far surpass those of the previous two years, as the new finds form important additions to our knowledge of Indian history and art. He for-

warded to the museum 737 fine pieces of sculpture, comprising beautifully finished panels, doorways, toranas, columns, complete railings with copings and bars, statues of Tirthamkaras, &c. Amongst these sculptures there is one which possesses considerable archæological interest. It is a torana bearing a relief which represents a stupa worshipped by Centaurs and Harpies, or, as the Hindus would say, Kinnaras and Garndas or Suparnas. Centaurs have been found on the Buddhist sculptures at Bharhut and Gaya, while Mathura has furnished the Silenus groups and Hercules strangling the Nemean lion. This new find is a further addition to the monuments which prove the influence of Hellenistic art among the Hindus of the last centuries preceding our era. Sixty-two of these sculptures are inscribed, bearing dates varying from 150 B.C. to A.D. 1023.

The electric light is being introduced upon a very comprehensive and satisfactory plan in Paris. The municipality has spent 2,000,000 francs in making a central electrical installation of its own in the basement of "Les Halles Centrales," which is the principal market, from which centre the illumination of a number of public buildings is conveniently managed. For the purpose of a general system of electrical lighting, the city is divided into seven *secteurs électriques*, the dividing lines of these *secteurs* or segments being made to radiate from the Halles as a centre, and each segment is granted for a short term of years to a responsible company. Edison has one, Victor Popp (using the Thomson-Houston system) has two segments, and so on. It is said that before the end of next year every street in Paris will be illuminated by electricity, and that every house will be able to be supplied with it. Every company is required to make their installation at once, so that the particular district they undertake to light shall be served with main cables. Other cities may profitably follow suit.

In his annual report to the Birmingham city council on the public works carried out during the year ended on March 31st last, Mr. W. S. Till, the city surveyor, states that wood pavement has been substituted for macadam in many of the leading thoroughfares, and in other cases the macadam has been replaced by granite paving. The amount spent on street watering and sewer flushing was largely in excess of previous years, and nearly double the quantity of water was used for these purposes in 1890 as compared with 1889. Some progress has been made in lighting the private courts, and plans, estimates, and apportionments having been made, notices were served on the owners of 440 courts requiring them to provide the means of lighting. The staff employed in the public works department under the Birmingham corporation now numbers 758, and there are now 205 miles of streets and 207¼ miles of sewers in the city.

The Architectural Association.—Scholarships.—The Committee of the Architectural Association is prepared to award two Scholarships, value ten guineas each, tenable for two years, to students intending to take up the Association's first and second year's courses. Likewise two similar Scholarships to students intending to take up the third and fourth years' courses. Applications, accompanied by specimens of drawing, to be made in writing on or before the 18th day of September, 1891, addressed to the Hon. Secs., 9, Conduit-street, W., stating the age of the applicant, particulars of his previous education, and any other information likely to be of assistance to the Committee in making its selection. The successful applicant, if not already a member of the Architectural Association, must become one in the ordinary way.

ERNEST S. GALE
F. T. W. GOLDSMITH } Hon. Secs.

The Croydon Board of Guardians, at their meeting on Tuesday last, adopted the plans of their architect, Mr. Frederick West, for the erection of union-offices and board-room, at an estimated cost of £6,500.

New board schools for 300 children will be opened on Monday next at Exmouth. The plans were prepared by Mr. Frank Carter, described as the clerk to the school board, and Mr. W. H. Perry, also of Exmouth, was the contractor.

During Wednesday's gale, a Congregational Church in course of erection on the London-road, Marsbrook, Sheffield, was blown down. The iron roofing was lifted off bodily. The framework was thrown down, and then the columns and principals gave way, and a mere heap of wreckage remained. The church was to have been opened on Tuesday week the 17th inst. At Fleetwood, serious damage was caused to the new market in course of erection at a cost of £5,000, on the Victoria-street side, where the wall fell. No one was injured in either case.

Trade News.

WAGES MOVEMENTS.

EDINBURGH.—The Edinburgh and Leith Master Builders' Association have issued a circular asking all employers of masons in Edinburgh and Leith to adhere to the resolution of 8th June to pay masons 8d. an hour, and any who may have paid a higher rate are requested to immediately give notice that, from and after the 24th current, the general rate for competent masons has been 8d. per hour.

LINCOLN.—The strike of builders' joiners at Lincoln, which commenced three weeks ago, still continues. In one or two instances the masters have conceded the demands of the men, which are for ½d. an hour advance now, and another ½d. to take effect on the 1st May, 1892, if the then state of trade should warrant the increase. The members of the Lincoln Master Builders' Association hold out against the demand, but are willing to concede ¼d. advance, which the men refuse to accept. The men also desire that a set of working rules should be signed by the masters. The bricklayers of Lincoln are also making a demand for an advance in the rate of their pay.

The town council of Chelmsford elected on Wednesday Mr. G. H. Sasse, assistant surveyor to the Tendring rural sanitary authority, as borough surveyor, in succession to Mr. C. L. Green, resigned. There were 101 candidates, and the salary is £250 year.

Holloway's Pills correct bile, prevent flatulency, cleanse the liver, and purify the system, renovate the debilitated, strengthen the stomach, increase the appetite, invigorate the nerves, promote health, and reinstate the weak to an ardour of feeling never before expected. They are indeed a blessing to those who suffer from disorder, internal or external.

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THE BRAMBLEDITCH STONE is of the same crystalline nature as the Chelynch Stone, but finer in texture and more suitable for fine moulded work.
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The most extensive Stock of every kind of Wood in Planks and Boards, dry and fit for immediate use.

TENDERS.

*** Correspondents would in all cases oblige by giving the addresses of the parties tendering—at any rate, of the accepted tender: it adds to the value of the information.

ALDERTON, NEAR EVESHAM.—For repairs and alterations to the Wesleyan chapel:—
Oakey, Winchcombe (accepted).

BARTON REGIS.—For the erection of a master's house at the workhouse, for the board of guardians:—
Beaven, A. J., Bristol (accepted) ... £880 0 0

BRENTWOOD, ESSEX.—For a villa for Mr. S. Ray, Queen's-road. Mr. A. T. Woods, architect:—
Ansell, A., Billericay ... £888 0 0
West, E., Chelmsford (accepted) ... 810 0 0

BRADFORD.—For repewing, redecorating, and ot alterations to the United Methodist Free Church, We gate, Bradford. Messrs. Rycroft and Firth, Bradfo architects:—
Joiners' work:—Holdsworth, J. W., and Co.
Heating and ventilating:—Hargreaves and Dewhurst
Plasterers' work:—Barker and Dixon.
Painting and decorating:—Collinson, W.
All of Bradford.

BRIDGEND, GLAM.—For building a new post-office:—
McGaul, Bridgend (accepted).

BRIXHAM.—For alterations and additions to house a shop, Fore-street, Brixham, for Miss Browse. Mr. G. Bridgman, V.P.S.A., Torquay and Paignton, architect
Rabbich and Brown, Paignton ... £595 0 0
Yeo, R., Torquay 550 0 0
Webber, H. Paignton (accepted) ... 448 0 0

BRIXHAM.—For alterations and additions to house a shop for Mrs. Edwards, Brixham. Mr. G. S. Bridgm V.P.S.A., Torquay and Paignton, architect:—
Yeo, R., Torquay (accepted).

BURY, LANCASHIRE.—For new roof, &c., to machi house, Elton Paper Mills, Bury, Lancashire. Quantit by Mr. C. J. Ford, 3, Clifford's Inn, E.C.:—
Tinline, J. £1,637 0 0
Byrom, J., Bury (accepted) ... 1,399 0 0

EALING.—For decorations to Ealing Congregatio Church and Manse. Mr. G. A. Lean, 8, Union-cou Old Broad-street, E.C., architect and surveyor:—
Penny and Co. £118 0 9
Nye 110 0 0
Jones Bros. 104 10 0
Myring 102 0 0
For alterations and additions to Manse:—
Penny and Co. 176 0 0
Nye 150 0 0
Myring 148 0 0
Jones Bros. 125 0 0

ESSEX.—For addition to Stondon Massey schoo Essex, for the Rev. E. J. Reeve, M.A. Messrs. J. Newman and Jacques, 2, Fen-court, E.C., architects:—
Barlow £182 0 0
Noble 170 0 0
Lemon (accepted) 125 0 0

EVESHAM.—For the erection of the Drift on the Gree Hill Park Estate. Messrs. Gant and Slatter, 11, Hay lock-road, Hastings, architect. Quantities by the arch tects:—
Taylor, F. W., Evesham (accepted) £2,266 0 0

GUILDFORD.—For the erection of a steam-roller she for the highway board:—
Banham, R. H., Stoughton (accepted) £42 0 0

HOLLOWAY.—For alterations to the Prince of Denma public-house, Junction-road, Holloway, for Mrs. Hu son. Mr. E. A. Hawkins, 47, Mark-lane, E.C., arch tect:—
Crane, J., Stoke Newington ... £542 0 0
Little and Senecal 540 0 0
Evans, W., Holloway 531 0 0
Stevens, T. 519 0 0

INGRAVE, ESSEX.—For the erection of pair of cottag for Mr. L. French:—
Ansell, A. (accepted) £200 0 0
(No competition.)

IPSWICH.—For building 23 houses on the estate of t Freehold Land Society between St. Nicholas-street a Friars'-road:—
Grimwood and Sons... ... ... £5,943 0 0
Grayston, W.... ... ... 5,910 0 0
Coe, A... ... ... 5,850 0 0
*Borrett, C. 5,775 0 0
*Catchpole, E. 5,750 0 0
Gibbons, O. T. 5,690 0 0
Pells, J. (withdrawn) 4,950 0 0
* Contract divided between these builders.

KENSINGTON.—For alterations, additions, and decor tions at 23, Elvaston-place, South Kensington. Mr. J. W Rhodes, 3, Clifford's Inn, E.C., architect. Quantities Mr. C. J. Ford, 3, Clifford's Inn, E.C.:—
Bowden and Co. £2,796 0 0
Wetton, E. A. 2,703 0 0
Shillitoe and Son 2,340 0 0
Stevens, T., London (accepted) ... 2,249 0 0

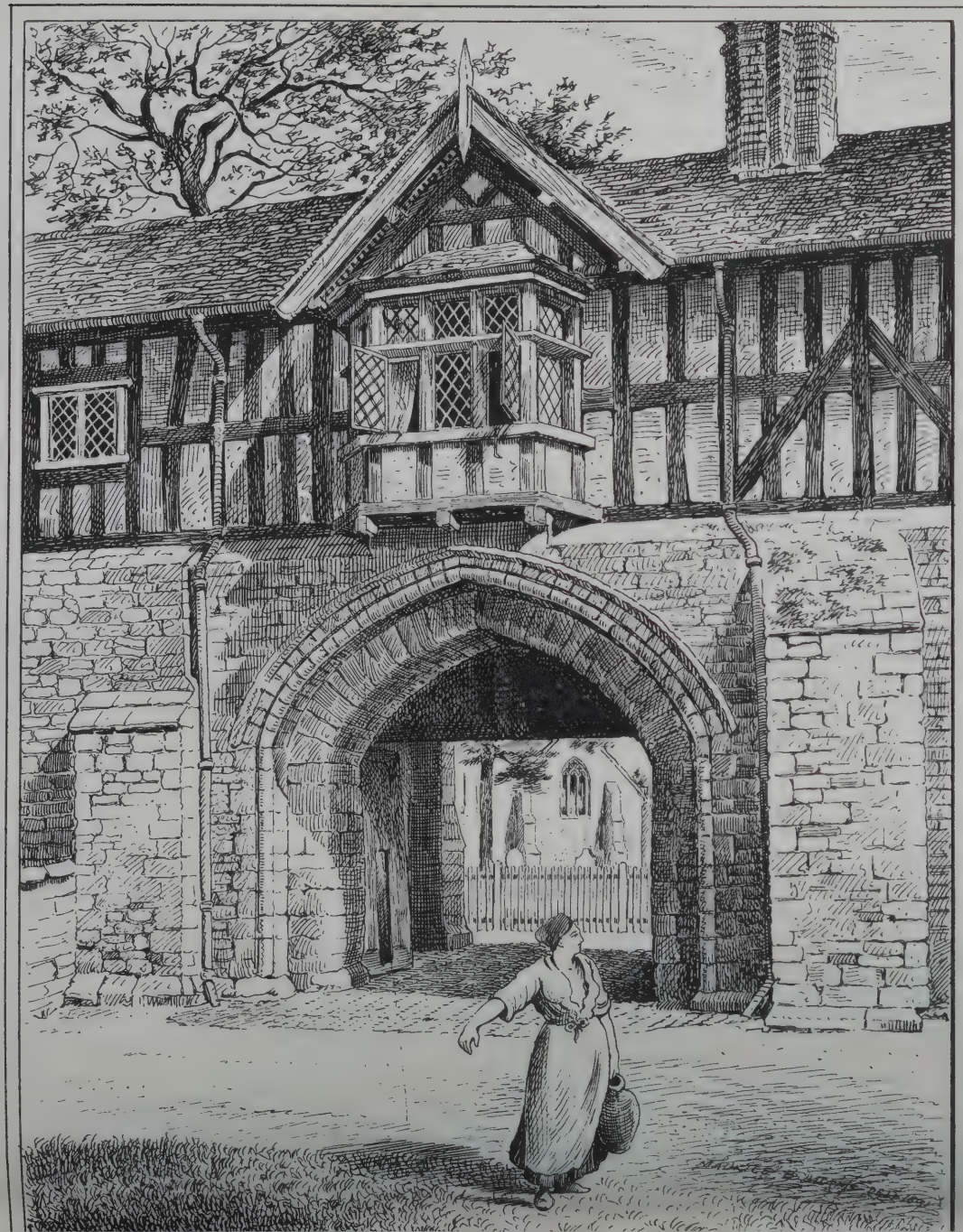
LEWISHAM.—For Davenport-road, Lewisham. M H. A. Alexander, architect:—
Adams £978 0 0
Botterill 917 0 0
Catley 889 0 0
Rackham and Bentham 788 0 0
Mayo 785 0 0
Wilson 784 0 0
Barlow and Roberts 731 0 0
Warner 730 0 0
Hall 720 0 0
Parry 720 0 0
Osenton 713 0 0
Fletcher 675 0 0
Bell 667 0 0
Woodham and Fry 645 0 0

LEWISHAM.—For finishing a terrace of five houses. M H. P. Monckton, F.R.I.B.A., 32, Walbrook, E.C., arch tect:—
Robson £560 0 0
Barnwell 374 0 0
Tattersall 308 0 0
Bryant (accepted) 301 0 0

LICHFIELD.—For alterations to the board-room of th board of guardians:—
Thorneloe, J., St. John's-street, Lichfield £106 0 0
(Accepted).

LITTLE BURSTEAD, ESSEX.—For the erection of churc schools, for the Rev. H. G. Bushey. Messrs. Newma and Jacques, architects:—
Letch, Braintree £520 0 0
Bruty 378 0 0
Ansell, A., Billericay (accepted) ... 333 0 0

LLANDUDNO.—For the erection of a mortuary, for th improvement commissioners:—
Hughes, E. (accepted) £66 15 0
(Lowest of two tenders received.)

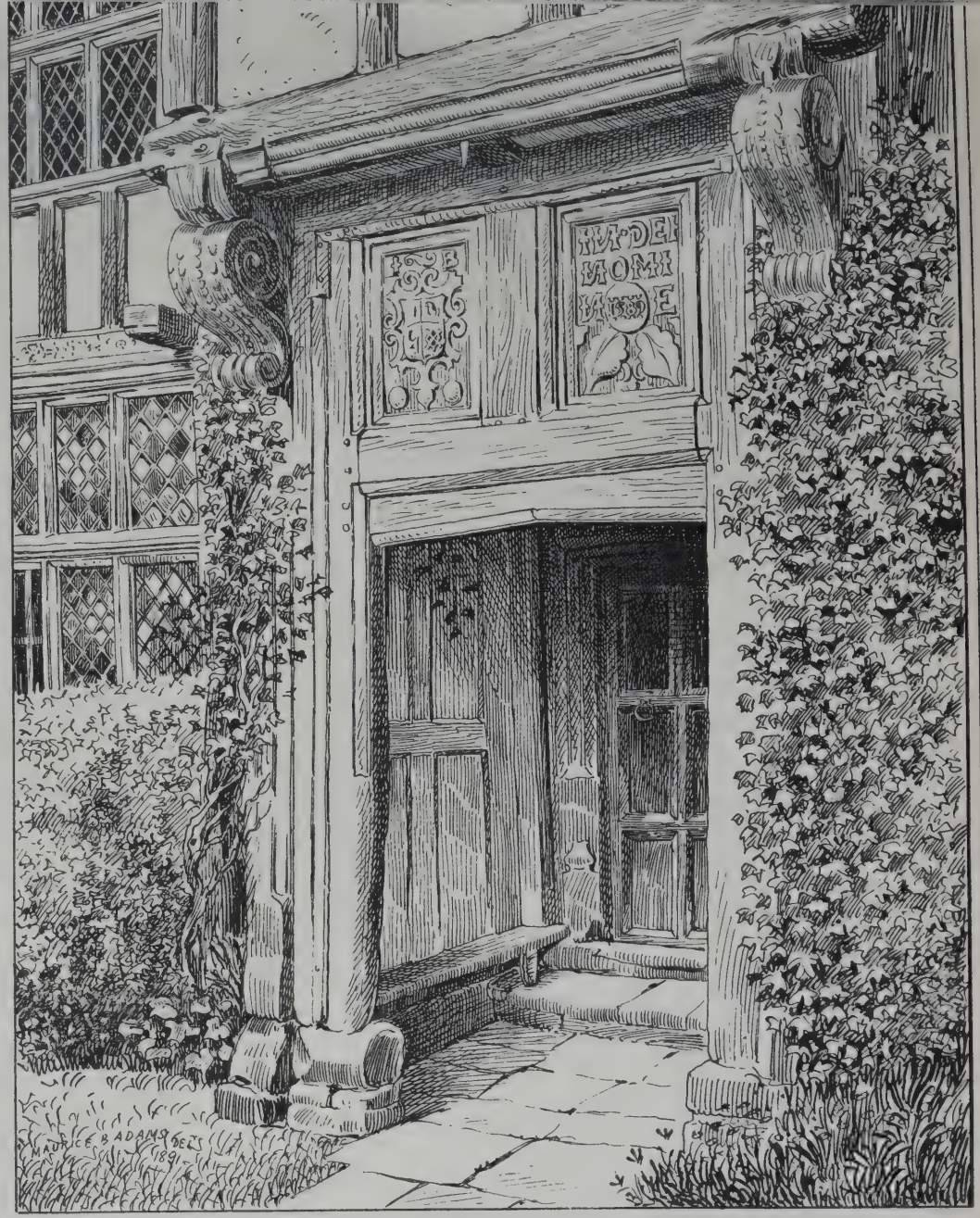






KNIGHTON ON TEME Nr TENBURY.

DRAWN BY MAURICE B. ADAMS.



A DOORWAY AT WEOBLEY.

PHOTOS BY Mr JONES, LUDLOW.

Photo Lithographed & Printed by James Akerman, 6, Queen Square, W.C.

Architectural Association Excursion in Shropshire 1891



THE GRAN

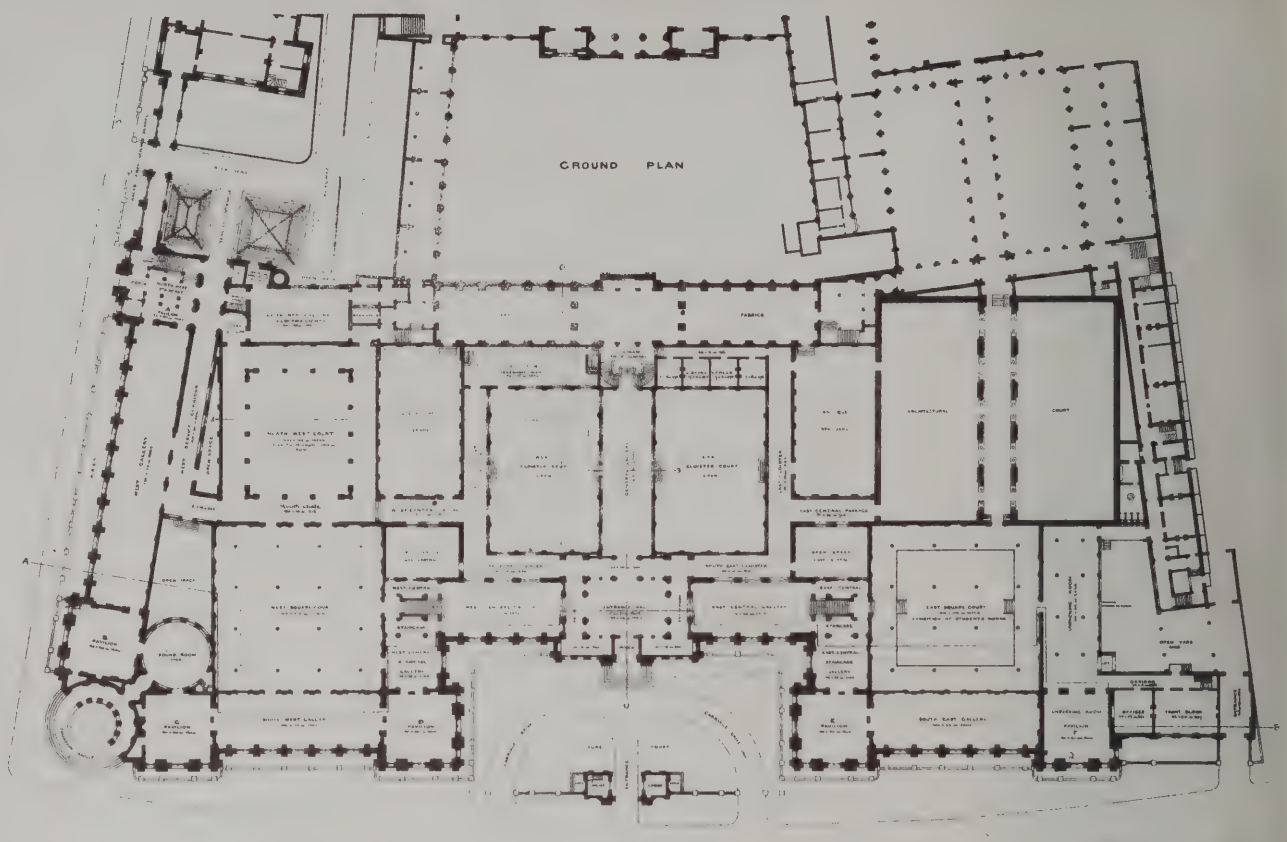
GEORGE J. SKIPPER, F.



Photo-Lithographed & Printed by James Akerman, 6, Queen Square, W C

EL, CROMER.

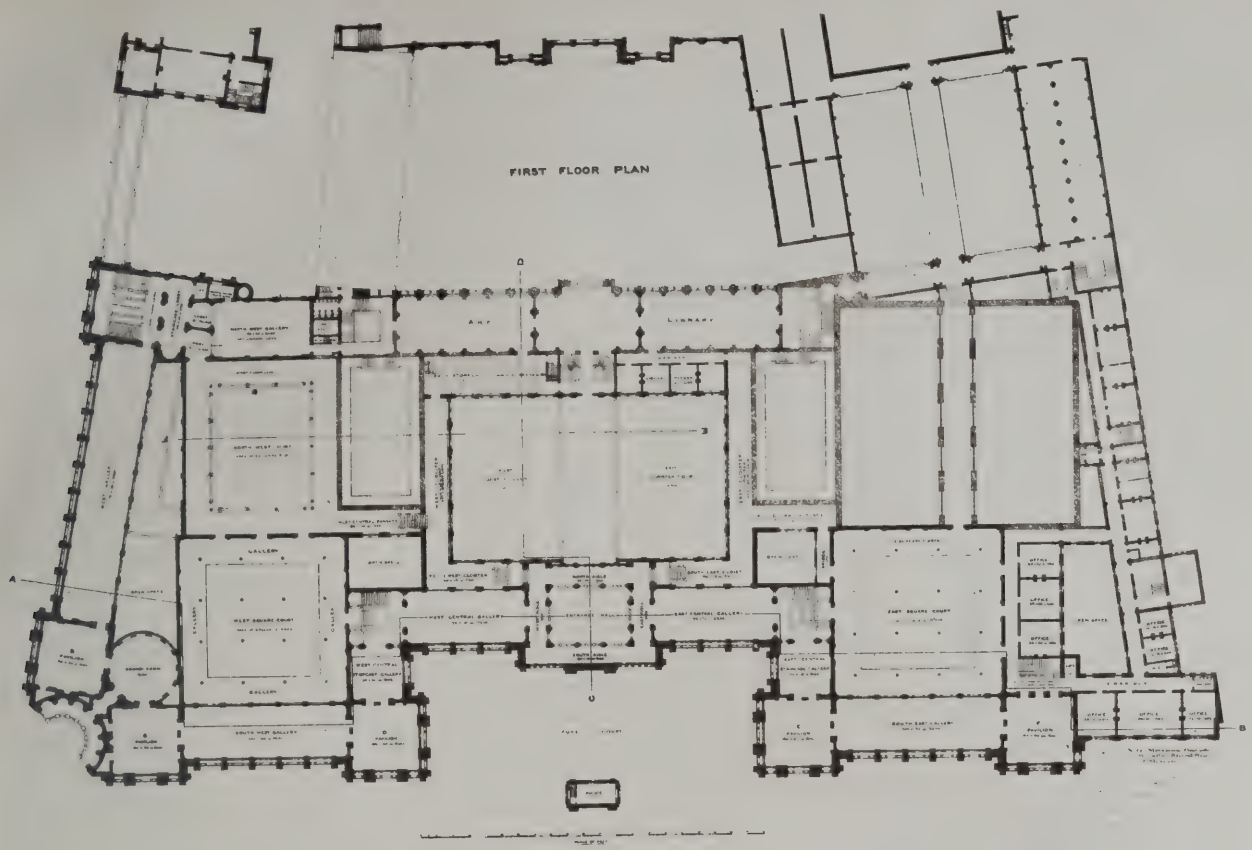
W. SKIPPER, Architects.





SOUTH KENSINGT

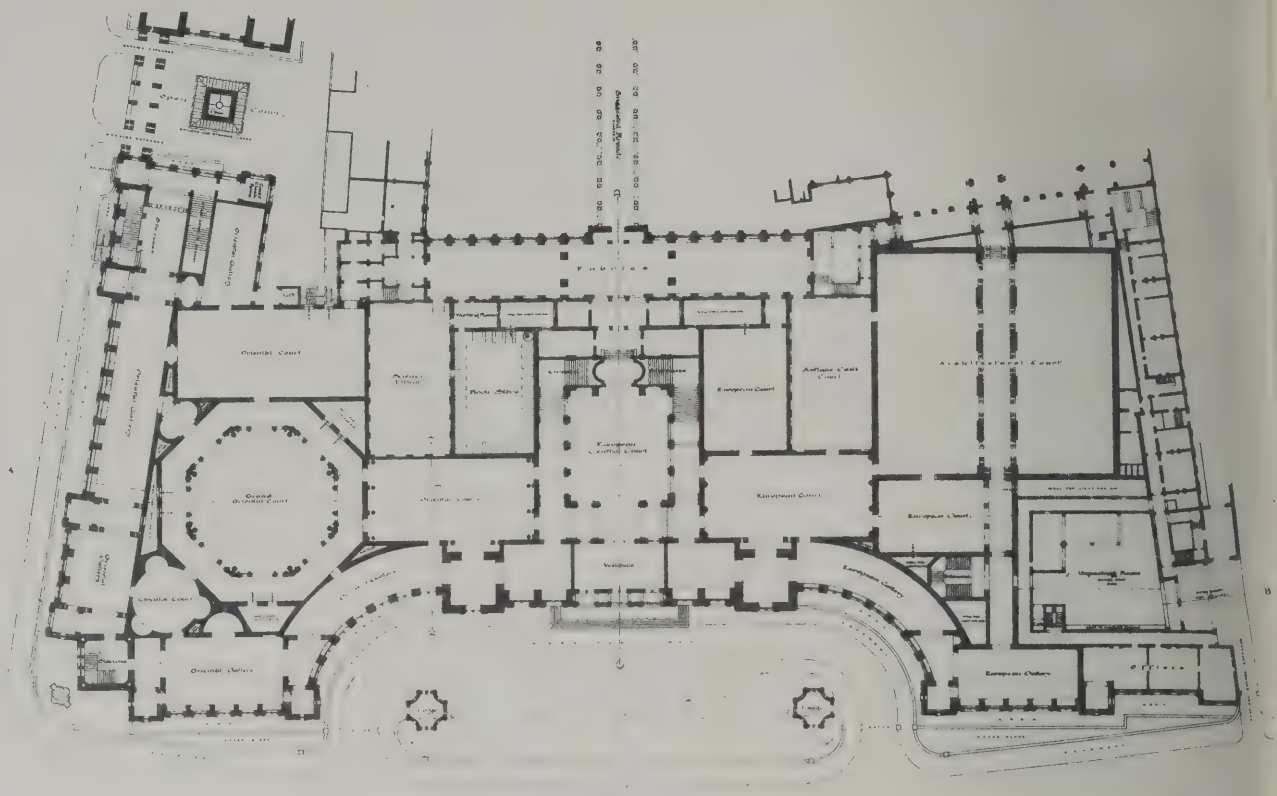
DESIGN BY SIR T.





SEUM COMPETITION,
& SON, ARCHITECTS.

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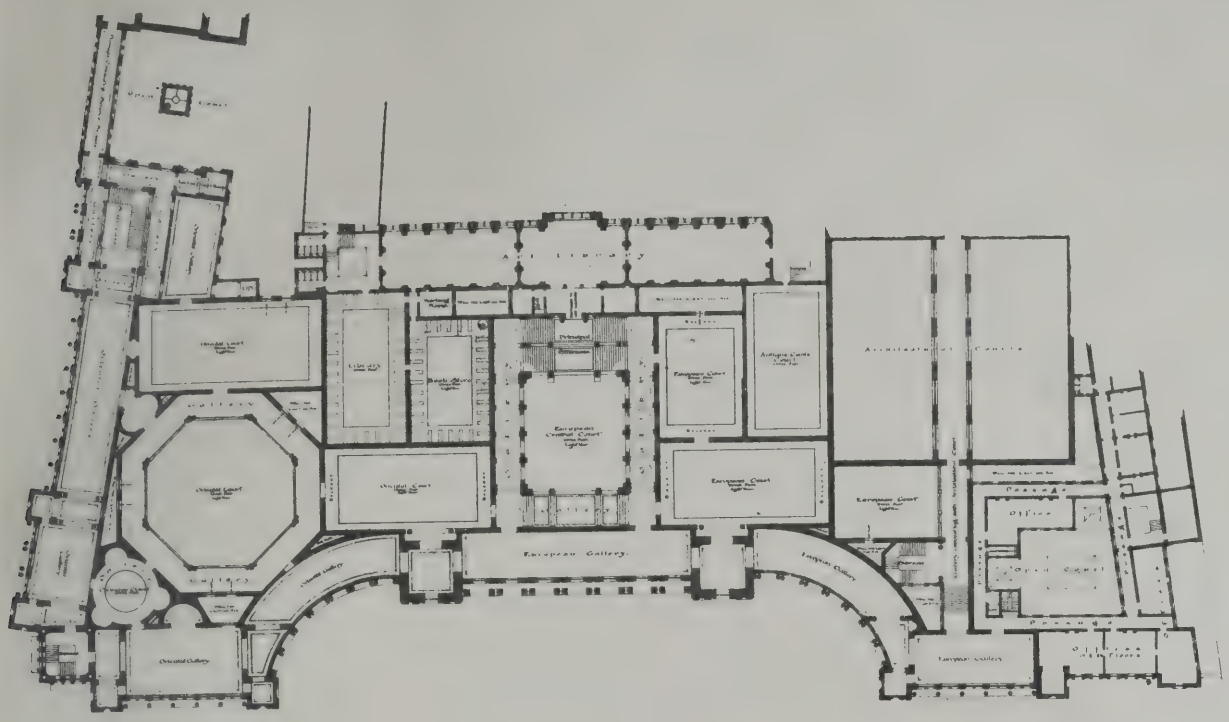


GROUND FLOOR PLAN



SOUTH KENSINGT

DESIGN BY



FIRST FLOOR PLAN.



Photo-Lithographed & Printed by James Akerman, 6, Queen Square, W.C.

UM COMPETITION,

ARCHITECT.

HE BUILDING NEWS
AND ENGINEERING JOURNAL.
VOL. LXI.—No. 1913.
FRIDAY, SEPTEMBER 4, 1891.

HE PUBLIC HEALTH (LONDON) ACT.

HE full text of the Public Health (London) Act, 1891, just issued, enables o glance at some of the main provisions ch concern building and the abolition of sances in the Metropolis. Hitherto sanitary slation as it affects London has been far ind that of the provinces. The new Act solidates and amends the provision of a e number of old Acts, repeals 16 Acts, and ially 19 others, and practically applies to don the principles of the Public Health of 1875 which has been in operation in our provincial towns and rural districts e the last date. Why the Metropolis has a so long left behind other towns in sani- legislation it is hard to say, except that old enactments have lain in the way of a prehensive scheme. The new Act of Mr. hie comes into force in January next. vill probably not be heartily entered by some of the vestries and district ds, who think that their interests have interfered with, and too much of their er centred in the County Council; but concessions made by Mr. Ritchie will tically give the vestries and boards more power than they have hitherto essed. The sanitary authorities for the ution of the Act will be in the City the missioners of Sewers; in the parishes tioned in Schedule A to the Metropolis agement Act, 1855, and amended by Act of 1885, and the Battersea and West- ter Act, 1887, other than Woolwich, estry of the parish; and in each of the icts B to the same Act, the district l; in Woolwich the local board; and in place mentioned on Schedule C the l of guardians or overseers of the poor. County Council reserve power to prose- in case of default of the sanitary ority, and do any act which the ority might have done, and to recover expenses; and they may also make plaint to the Local Government Board of default (Secs. 99—101).

e powers given to the sanitary authority y district enable them to make inspec- of their district from time to time to what nuisances exist and to abate the . Certain nuisances may be dealt with narily, amongst them premises in such te as to be a nuisance or injurious to h; foul or insanitary closets, cesspools, s, cisterns, watercourses, and gutters; leposit injurious to health, overcrowded s, absence of water-fittings; factories workshops which are uncleanly, badly ated, or overcrowded. Certain reser- ns and exceptions are made, however. uthority may in some cases specify the s to be executed, and serve a notice on wner to do what is necessary for pre- ng the recurrence of the nuisance. For nces arising from any want or defect of ctural character, or where the premises ccupied, the notice is to be served on vner, so that tenants will not be troubled defects for which they are irresponsible. ub-clause enables the medical officer to y to the authority if any house or part ne is so overcrowded as to be injurious lth—a very necessary provision where ny houses are tenanted by two or three es.

n-compliance with notice may result in plaint of the authority, and the petty nal court may make a nuisance order, may either be an abatement order, a prohibition order, a closing order or a combination of such orders. Thus, a closing order may prohibit a house from being used for habitation if it is unfit for that purpose, and a fine of £20 may be imposed. A fine of 40s. a day is imposed upon any person acting contrary to a closing order, and the authority may enter any premises and do what is necessary to abate a nuisance; but a person may appeal to the court of quarter sessions against an order which is, or includes, a closing order, or which entails structural work; but, to prevent litigious appeals, the authority can fine any person 20s. a day during the non-compliance of an order unsuccessfully appealed against. Section 10 enables an authority to enter premises to find out any nuisance at any hour by day. Sanitary authorities are empowered to make by-laws for the cleansing of streets and the prevention of nuisances, and these include those arising from snow, ice, salt, dust, ashes, or other matter; and for preventing any offensive matter running out of any manufactory, brewery, or slaughter-house, butcher's shop, &c.; for paving yards. The Council can make by-laws for prescribing the times for the removal by road or water of any offensive matter in or through London; and for the proper construction of the carriage or vessel; and for the filling up of cesspools or privies, removal of refuse, &c.; and any person may be arrested without warrant who is found committing offence against these by-laws, and who refuses to give his name and address. Penalties are enforced for keeping animals in unfit places, and Section 19 deals with offensive trades, and enacts certain regulations and penalties for the establishing anew of blood and bone-boiling, soap-boiling, cattle and horse-slaughtering, and other offensive businesses. Licenses are required from the County Council for the use of premises in London for slaughtering, cow-houses, or knacker's yard. A very important provision (22) enacts that house and street-refuse collecting and depositing, being a business carried on by a sanitary authority, shall be amenable to the County Council, who are empowered to take proceedings, also that premises used for the disposal or treatment of house or street refuse which are a nuisance are liable to be summarily dealt with. Many receptacles and pits now used by sanitary authorities would be liable under this clause. Other sections provide for the construction and regulation of furnaces of factories, gasworks, and other buildings used for manufacture, so that they may consume the smoke; for inspecting workshops and bakeries, cleansing them, the registration and control of dairies, their lighting, drainage, and ventilation; the removal of refuse from streets by authorities, who are liable to a fine for not cleansing them in due time.

The Act, as it applies to buildings in the Metropolis, relates especially to regulations as to water-closets, provisions as to water supply, houses let in lodgings, and underground rooms. As to the first of these, we may briefly say that any newly-erected or rebuilt house is to be provided with ashpit with proper doors and coverings, and one or more proper water-closets, in default of which a fine of £20 is to be imposed. Houses built before or after the operation of the Act are subject to the sanitary authority's power in these respects, and they may serve notice on the owner or occupier to supply the deficiency. Sect. 39 empowers the County Council and sanitary authorities to make by-laws with respect to the water supply of closets, ashpits, cesspools, &c. A fine is imposed for any improper construction or repair of water-closet or drain which causes a nuisance, and, in short, the sanitary authority has power to authorise an inspection of all closets, and to compel the owner or occupier to do what is necessary to put the apparatus or its connections in proper order and condition. The provisions as to a water supply apply to all occupied houses without a "proper and sufficient supply" which are regarded as "nuisances," and liable to be summarily dealt with. Newly-built houses are not to be occupied until the sanitary authority have certified that they have a proper water supply; the cleansing of cisterns is provided for in section 50, which enables the authority to make by-laws, and public fountains, cisterns, and reservoirs are to be under their control.

Sanitary authorities are vested with very useful powers in sect. 94, to make by-laws as to houses let in lodgings, for the purpose of fixing the number of persons who may occupy a house or part of a house which is occupied by members of more than one family; for the registration of such houses, their inspection, drainage, ventilation, &c. No less important are the provisions (Sect. 96) as to the occupation of underground rooms not let or occupied separately as a dwelling before the passing of the Act. The rules laid down are, briefly, that the room so let is at least 7ft. high, and has at least 3ft. of its height above the surface of the street or ground adjoining; provided that if the width of area is not less than the height of the room from the floor to the surface of street, the height of room above such surface may be less than 3ft.; but in no case is it to be less than 1ft.; and the width of area need not in any case be more than 6ft.; that a proper damp-course be inserted in every wall, which is to be secured against dampness from the soil; that an open area be provided of the entire frontage of the room, extending from 6in. below the floor level, properly paved, at least 4ft. in width; that the area and soil below the room be drained; that the space below the floor be sufficiently ventilated; that any drain under the room be constructed of a gas-tight pipe, that exhalations from the soil are excluded, that a proper w.c. and ashpit be attached, that the room be ventilated, and have a fireplace with proper flue, and one or more windows opening into the external air of a total clear area of at least one-tenth of the floor area of room, one-half of which window is to open. A penalty of 20s. per day is imposed for occupation of a room let contrary to this enactment. These provisions are to extend to rooms previously occupied at the expiration of six months after the Act comes into force, unless the authority dispense with or modify them. Owners may appeal to the Local Government Board if such dispensation be not granted. The powers vested in the authorities are subject to modification: they can dispense with the provisions for a time, or they may be varied by the authority. When these enactments come into force we may expect an appreciable improvement in the health of the Metropolis. The rules we have just referred to will have one desirable effect if they serve to diminish the number of persons living in certain localities and distribute them over a wider area; they will also give an impetus to sanitary rebuilding.

THE DESIGNING OF WINDOWS.

THOUGH a common element of all architecture, the window possesses a significance which can scarcely be surpassed by any other feature. As the light-aperture, it has its function in bestowing health and cheerfulness on the inmates of a building; as an element of architectural design, it is a powerful means of expressing character. And yet, strange to say, it is one of those things which are left pretty much to the mere whim or taste of the designer. Its two-fold purpose requires that it should be determined by both the plan and elevation of the building, but the ordinary process is to make its size depend on the appearance, as studied in elevation, as if it had little to do

with the interior. A window is put here or there, made a little larger or smaller, higher or wider, as a single opening or divided into lights, to suit the elevation or the amount of space at disposal. It is sometimes a question of filling up a space in width, sometimes a question of height. This one-sided mode of deciding by external elevation cannot be a satisfactory method, for we get in one room perhaps two or three windows, and in another room only one, quite irrespective of the area or size of the apartment. In one part they may be heaped all together, as in one corner of a room; and the other corner left in darkness. We know these awkward and inconsistent distributions of windows often occur in public buildings in the Classical style, much to the discomfort and inconvenience of officials and clerks. Some of the rooms of the War and Foreign offices suffer from this uneven distribution of light; and we may recall to mind many a modern municipal building in which the studied regularity of the fenestration has completely sacrificed internal light and convenience, and has been made the excuse of perpetrating many absurd arrangements.

To avoid these anomalies, windows ought to be fixed in position by the plan, having regard to the main divisions of the façade. The question of how to determine the width and number of apertures is important. Here physical conditions come into play. As the rays of light proceed in parallel lines from a window receiving light from an illuminated sky surface—and this view is practically correct—we may assume that the size and proportion of a window-opening will be the best guide to the size and proportion of a room that can be efficiently lighted by it. Thus, roughly, a long and narrow room, with a window at one end, will be best lighted by a tall, oblong opening; or, if the light is to be admitted along one side, two, or more, short windows will be sufficient. This conclusion will be apparent if we consider that a window of, say, rectangular shape, admits a prism of light of a sectional area equal to the opening, and we assume a certain angle or obliquity to the rays. If we take the section of a window opening in a wall, and draw a line from its top edge of the assumed angle and another parallel thereto from the sill or lower edge of window, we represent the direction of such a prism of light entering a room. Extending these lines to the floor-level, the latter becomes a horizontal plane, and will show how much of the floor will be illuminated directly by the window; the higher the window-head the farther the rays of light will extend into the room, and a good idea will be obtained of the length the room ought to be from the window. Also, the nearer the window-opening is to the floor the greater will be the extent of illuminated area, and the loss there will be of a dark or unillumined corner under the window. For practical purposes we may assume the angle of the light rays to be 45° above the horizon, so that if the window-head is, say, 12ft. above the floor-level, the prism of light will extend the same distance into the room. A simple geometrical construction of this kind will enable the architect to proportion the proper height and width of his window apertures without having recourse to any calculations, such as are met with in treatises. The rule is easy, and can be quickly applied by drawing lines on the section to the angle at which the light is supposed to enter, or in making the depth of room from the outer wall not much more than the height of the window. It may be remembered for all practical purposes that in this dull climate of ours, when the sun so seldom shines directly on a window, the effective portion of the illumination received through a window is that derived from the sky; and, secondly, that the principal portion of such light comes from the upper part of a window, that near the zenith; hence, that the higher the window, the more intense the light. That near the horizon is often obscured by fog or smoke or opposite buildings. Geometrically we may represent the available sky surface as half a hemisphere placed with its flat side to the window. We describe, in other words, on the plan, a semicircle of any radius from the centre of the window on the outside, and from the same centre and with the same radius a semicircle on elevation. Between these semicircles we can imagine the quarter sphere of the sky. This may be divided into zones by horizontal semicircles from the zenith to the horizon, of a certain number of degrees each —say 10°; also, we can divide the same quarter sphere vertically by quadrants, the same number of degrees apart, and we can affix a value to each division or sector between these two sets of lines. In this manner it is easy to calculate the light entering a window in any direction, and also the amount of light shut out by any obstruction. As our readers know, this plan of considering light and obstruction is employed in estimating the amount of obstruction in light cases; but the system is of equal value in ascertaining the quantity of light from the illumined sky which enters a given form of window, and it is for this purpose that we refer to it now. It is shown by all authorities on light that the intensity of light from any part of such a sphere is proportional to the sine of the angle of altitude above the centre of window at the bottom. At the zenith, for example, we may call the intensity 1,000; while at a point lower down, say at an angle of 30° from the zenith, the same area will be represented by 866; and at an angle of 45° by the figure 707. Along the lower zones the intensity of light declines till at the horizon it is nothing. It is also worthy of notice that the intensity of light received from the portion of the sky or sphere above an angle of 45° is equal to that of the surface below it, though their respective areas are very unequal as measured on the sphere. If architects bore in mind this fact, they would see the necessity of placing their windows high in the room instead of low down; also, when light is essential, preferring clerestory to wall openings in some cases. Thus a long horizontal opening below the ceiling gives the best light, but such an aperture would not always be desirable.

The form and proportion of the window apertures are essential. A great deal may depend on the style and destination of the building; but we now confine our attention to the principles, physical or geometrical, which should guide the architect in giving a form and proportion to his windows, irrespective of the consideration of style. For agreeable proportion as applied to a plain rectangular window opening, we may take the windows of Somerset House, which are two squares in height, or 2 to 1. Palladio generally used a double square, and this proportion is generally followed by the Italian architects. Examples are found in Chambers's "Treatise on the Decorative Part of Civil Architecture," and also in Gwilt's "Encyclopædia." But inflexible rules are useless, simply for this reason—that more light may be necessary in one room than another; and we have the differences of position, obstructions by opposite buildings, and other circumstances to consider in each case. The most desirable proportion for an aperture should be regulated by the shape of the room; thus, if it is a long room, and the window or windows are at one end, they should be tall, so that the light through their upper portions may penetrate well into the room. With regard to the size of window, one good rule is to find the cube of the room in feet, and the square root of the product will give the area of the opening in feet, which may be given to one or more windows as required. do not place much confidence, howev any rule which must be arbitrary, therefore cannot apply to bright and outlooks or to varied degrees of ligh is far more reasonable to consider amount of illumined sky surface l a given window or front of wir in the manner we have described, to proportion the apertures to the a amount of light available under a n condition of sky. Thus, in dar thoroughfares the windows ought to be and tolerably wide, so that as much zenith light may be secured as possibl further, projecting pediments, balconie cornices should be avoided or reduce is better to err on the side of too than too little light, so that the er of buildings may not seriously darke rooms. The heads or upper portions windows are often darkened by tra heads, painted glass; hence the importa making all decorative windows larger i than absolutely necessary for light, o those which are plain and merely fil with transparent glass. We very oft this rule neglected. Semicircular hea filled with carving in stone or terra modelling, or mullions carry perf tracery, so that the most efficient part window is lost or the light is reduce considerable extent. A strong objecti the ornamental headed window is tha actual light aperture is necessarily l the room to give space for the sculp tympanum or tracery. Another archite arrangement ought to be noticed, qu objectionable. In elevations of façade is often a full-membered entablature summit, and this, for the sake of con tion, is generally placed so that the member or cornice is below the roof the consequence of which is that the depth of entablature occupies a consid space down the wall below the ceiling and the windows have to be placed consequence, their heads being bene soffit of entablature, with a blank s walling over their inside. We have serious impediment to effective light windows, as the windows are too admit the best light, and the projec entablature over obstructs the rays d overhead. The difficulty is often r omitting the lower members of entab and in placing the cornice as high a sible. If there is a parapet and bal to act as a counter-weight to th nice, the latter may be placed the plate-level of roof, so that pl headroom be obtained for the windows. One way of getting over th culty is by the dormer; but the arrangement is expensive. A friez often be perforated to admit light un ceiling in addition to windows. The of wide piers between windows in or is that dark shadows are cast; there is an advantage to group windows to other than to separate them by wide of wall.

The decorative treatment of windo larger subject than can be dealt with article. In Eastern countries the was small and unimportant as an tectural feature; its development h simultaneous with the necessary enlar of the aperture. The growth of M architecture is largely identified w increase of the light aperture, as the of Gothic tracery will at once reco comparing Early Romanesque or with Late Perpendicular. But th nary window, with its accompanim a product mainly of the Italian sance. At first a mere aperture f in a wall, it soon began to develop and significance. We have, first, th trave and pediment as a frame, as w the Farnese Palace, Rome; the Refo

ll Mall; and Somerset House; then we ve the lighter palatial style of Venice in h palaces as the Vandramini, and the aro, or the well-known library of St. rk, where two orders inclose arcades and nings of considerable area with a range panel lights in the upper frieze, with the ious intention of obviating the dark, nk space above the main arcade of win-vs. In these and other instances the ds are reduced to a minimum, the wall appears, and attention is concentrated tead on the orders of columns which form piers and the horizontal lines or arcades. e process has been similar to the growth window tracery; at first there was only aperture—a mere group of lancets—which time began to be placed nearer together mere mullions intervened, and at length late" was exchanged for "bar" tracery. another article we may indicate how im-tant the fenestral disposition is to the ign. The whole character of the com-ition is altered by the arrangement of window.

NONCONFORMIST CHURCH BUILDING.*

By James Cubitt.

CHAPTER III.—SELECTION OF A DESIGN.

HE point has now been reached at which the committee have before them a ign or competing designs for their pro-ed building. On their action now its cess or failure will mainly depend; and ore they finally approve a design in the e case, or make a selection in the other, a ge number of points need careful consider-n. These may be arranged under the lowing heads:—

. Materials and cost.
. Arrangement of plan.
. Architectural style.
. Internal and external design.
. Acoustics.
. Ventilation, warming, and lighting.

t is not necessary, however, that the rming and lighting arrangements should worked out *in detail* at the beginning, the same may be said of—

. Internal fittings and furniture.

1.—MATERIALS AND COST.

These two subjects can best be treated to-her, because the cost greatly depends on materials adopted. There is doubtless a ce in the world for buildings, and espe-lly for churches, on which money can be ely spent, and to which nothing is dged that can contribute to perfection. say that no religious architecture ought rise above the level fixed by convenience decency, is like saying that no sacred sic ought to rise above the level of a nn tune. Costly buildings, however, are essarily few, and amongst Noncon-nists the pressing question is often how to ke the best of very limited means. It is ouraging to remember, then, that most lised nations, at one epoch or another, e found it possible to treat *all* their ldings artistically. This is a fact too ch lost sight of. If Classic architecture amed, people think at once of a temple; post-Classic architecture is talked of, y imagine a cathedral, or something of al importance. Yet temples and cathe-ls were quite exceptional works, treated quite an exceptional way. Along with m and around them there was a whole ld of every-day architecture for every-purposes, and a cheap architecture for se who found economy imperative. The ages of olden times were often, in a se, as artistic as the cathedrals, and the e may be said of a multitude of other works in the ascending scale from the lowest to the highest.

There is no reason, then, why cheap churches should not be as perfect in taste as costly ones; but the first condition of this is that they must be perfect in a different way. They must rely, not on grandeur and symmetry, but on picturesqueness, interest, and individuality. They must give up the idea of having the "highest spire in the neighbourhood," and must concentrate their means on doing thoroughly and effectually the things which it is really important to do. They must be built mainly for the sake of the worshippers within, and not mainly for that of the passengers without. If they need to sacrifice anything, they must sacrifice the exterior to the interior; they must give up ornament to gain dignity, and prettiness to gain permanence. They must, in short, be their own best selves—realities and not reflections—and must develop their own character and their own possibilities, which only need cultivating to take and hold, even in the art world, a yet unfilled position.

There are, broadly speaking, three main types of internal construction available, depending on three different materials. These are (*a*) wood, (*b*) iron, and (*c*) stone. In this order they go from the cheaper to the dearer, and from the less to the more monumental. In other words, there are three principal ways of dealing with the internal supports of a building, of which the columns and arches are the chief. The outer walls form a separate question, and may be of brick or stone or concrete, whichever happens, in each particular locality, to present most advantages.

(*a*) For the very cheapest class of church interiors there is much more to be done with woodwork than has ever been effected yet. Merely to get rid of the ugly pretentiousness of the cast-iron column, and to substitute an artistically-treated wooden shaft, is by itself an immense improvement. And not only for columns, but for many other internal details, we have in wood a cheap and easily-worked material, pleasant to the eye, and needing, except where it is freely exposed to handling, neither paint nor varnish. Unvarnished woodwork, even of common deal, grows richer in colour and more beautiful in tone with every year that passes over it. For internal work, it lasts as well without paint or varnish as with them, so that in a church these things are quite unnecessary, unless it be on doors and pewing. Wooden linings to the walls, indeed, are not to be generally recommended. There is no cheaper material in this position than plaster; and if treated *as* plaster, and not made into an imitation of something else, it is capable of more beauty and refinement than it often gets credit for. The weakness of wall-plaster is, that if used by itself in large surfaces it looks uninteresting and unconstructional. It does not give the idea of strength or of solidity. But these qualities can be easily imparted to it by interspersing it with piers or bands or occasional patterns of brick or stone. Such things cost little, and they instantly mark the fact that beneath the plaster there is a solid wall, and not a mere lathed partition.

Quiet and skilfully-managed colouring, again, blending walls, roofs, and windows into one harmonious whole, will of itself make the most unpretending interior attractive; yet nothing can be cheaper. It only needs to design the window-glass and to tint the walls so that they and the woodwork of the roofs and columns and seats will be mutually helpful in colour, and not mutually destructive. The chief risk here is the risk of what may be done after the building is finished. One or two conspicuous patches of bright red or bright blue, subsequently added, will probably be enough to nullify, in the way of colour, all which the best decorator can accomplish; and if, for instance, there is any pierced woodwork in the place, someone or other will probably want to back it up with crimson cloth. Much interest may be given to a church of the simplest sort by the treatment of the glazing; not by putting to it raw and staring borders of ruby and ultramarine, and still less by inserting the terrible "memorial windows" of the cheap glass-painter, but by getting the architect to give a little thought and care to the patterns. The additional cost of a few varied designs in the lead lights is trifling, and the gain from thus breaking up the monotony of squares and quarries is very great. Then, again, much of the cost of stone dressings can be saved by using instead a superior sort of brick—for jambs, arches, and quarries—and this not only without but within the building. If the roof of the church is tiled, tiles of different, but harmonious, tints, mixed at random, will give some display of colour, and prevent harshness and rawness; while, if it is slated, the smaller the slates are, the cheaper they will be, and the more artistic their effect. In these, and many other ways, there are all sorts of possibilities, even in the most economical kind of work. The great thing to remember is, that it is better to start with a modest scheme, and do it well, than to adopt a too ambitious one, and starve it down.

(*b*) In cheap churches of large size—those, for instance, seating from 800 to 1,500, or more—wooden columns are scarcely suited to carry the weight of the roof. And, again, in buildings as large as this, the danger of loss of life from fire has to be taken into account. With a small congregation this risk is seldom serious, for in case of danger everyone can rapidly escape. Now, for superior strength, combined with economy, one naturally looks to iron or steel; but for fireproof qualities, even wood itself, if in large scantlings, is better. Iron and steel, indeed, will not burn, but when heated they will bend; and an iron column will bend sooner than a wooden post of the same strength will burn. Cast iron, especially if unprotected, is amongst the least fireproof of all materials.* In concert halls and music halls, therefore, structural ironwork has, by law, to be inclosed in concrete or some similar material for protection. The same rule should undoubtedly be applied to all public buildings above a certain size. In London and other large towns there are numerous places of worship holding from 1,000 up to 3,000 or 4,000 people, and depending entirely on unprotected iron columns. Almost any one of these buildings, if the fire once got hold of it, would collapse in half an hour, or very likely less. Whatever may be done about these existing structures, it is quite clear that no more of the sort should be built—at least, of similar size. All ironwork, and iron columns in particular, should be thoroughly embedded in a mass of non-conducting material.

This necessity, once acknowledged and dealt with, ought to begin a new epoch in the planning of the larger Nonconformist churches. And the reason is this: Iron columns, when unprotected, are small, and cause little obstruction to sight. It has, therefore, been the custom, in multitudes of cases, to dot them down anywhere, without regard to architecture or design. Where there was a weight to be carried, the thing needed neither thought nor skill. It was only the putting of an iron column underneath it,

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* This fact, now well known to architects, was perhaps never better illustrated than in the burning-down of the Surrey Music Hall—a structure holding over 6,000 persons—some eighteen years ago. The author happened to pass it immediately before the fire broke out, when there were no signs of danger. On re-passing it an hour afterwards it was scarcely recognisable. The lofty roof and all the galleries had fallen in and disappeared. Only the walls remained, inclosing a sea of flames, out or which here and there some of the iron columns still protruded, bent and twisted into all sorts of fantastic shapes. Fortunately the building was empty, and no lives were lost.

and this haphazard way of getting over difficulties has been fatal to art. But if iron columns have to be encased in concrete or terracotta, they are no longer the trifling obstacles they were. Their position henceforth will have to be seriously thought about and skilfully arranged for, unless they are to be as ruinous to convenience in future as they have been to architecture in the past. And the result of this is, that in time to come we, or our successors, may hope to see in Nonconformist churches some ingenuity of arrangement, some beauty of general form, which, however unadorned, will be better than shapelessness disguised with finery.

(*c*) No other kind of construction, it need hardly be said, has such an air of permanence and impressiveness as that which is entirely in brick or stone. The only drawback is its comparative expense. It is possible, however, at little cost, to combine this with either of the previous types, and so to get some approach to a monumental character in a cheap interior mainly carried by wooden or encased iron columns. If the columns are of stone it is better to give a little study to the placing of them where they will not be inconvenient, than to fall back on the easy but unsatisfactory expedient of thinning them down. Some ways in which this may be done will be suggested in the next section.

Which of these three modes of building—*a*, *b*, and *c*—it may be best to adopt in a particular case will depend on the size of the church, and on the funds available. *a* is chiefly useful for small or only moderately-large structures; *b* for large ones; and *c*, if means will admit, for those of any size. But, obviously, cost does not depend entirely on materials and modes of construction. It depends greatly on general design, as well as on the sort and amount of decoration that may be introduced. On the type *c*, galleried churches are much more costly for the same amount of accommodation than ungalleried ones, and this is partially true, too, of those in the class *a*.

It is rather difficult to get exact information as to the building of Nonconformist churches. Some of the published statements give the cost of the church alone. Others include along with it in a lump sum the cost of Sunday schools and classrooms. Others, again, put in, either with or without the last items, the expense of lecture halls, caretakers' houses, and similar erections. The cost of the site, again, is sometimes included, and sometimes not included, in what is stated to have been the outlay on a church. And sometimes, to all the additions above-named, there are added the cost of the organ, the cost of carpeting and furnishing the minor apartments, and even, in certain cases, the expense of purchasing adjoining houses to improve the site. The grand total is then too often announced in a way which leads people to suppose that it is only the amount of the builder's contract. A striking instance of this occurred not long since, on the completion of one of the largest Nonconformist edifices in London. The outlay on the church in this case, with all its fittings and decorations, was about £20,000. A multitude of subsidiary buildings which adjoin it, cost nearly £12,000 more. But, in the published accounts circulated everywhere by the newspaper press, not only were these two items thrown into one, but all the different forms of outlay enumerated above, and a great many more, were added and included. The result was that a church which actually cost £20,000 was stated to have cost £50,000, and that most people suppose the latter sum, and not the former, to be the amount expended in building it.

It is clear that no useful comparisons are possible between statements of this loose and uncertain nature. A few examples, however, may be given from the author's own practice, showing the relative cost of different modes of building. In each case they include the actual outlay on building the church, with the necessary rooms or "vestries" for the minister and church officers, the cost of the pulpit and pewing, and that of warming and lighting. But they do not in any case include the cost of schools, classrooms, lecture halls, caretakers' houses, or other buildings; nor that of the site or its boundary fences; nor the cost of organs, or of carpets, and the furniture of rooms. The sums given, therefore, can in this case be compared with something like accuracy. They are not mere preliminary estimates; but, except in the cases otherwise stated, they give actual amounts laid out, including all extras.

Locality.	Number of sittings (for adults).	Cost of building.	Cost per sitting.	Cost in pence per foot cube	Remarks.
		£	£ s. d.		
Rye Hill, Newcastle	1,150	2,900	2 10 6	$3\frac{1}{6}$	Walls of stone, internal construction wood and iron.
Algernon-road, Lewisham, S.E.....	310	1,200	3 17 6	$5\frac{1}{3}$	Walls brick; stone and pressed brick dr tiled roofs; internal construction of boarded ceilings.
Urmston, near Manchester	350	1,650	4 14 4	5	Walls of Yorkshire parpoint stone dr stone turret and spire; no columns; ceilings.
New Barnet	300	1,160	3 17 4	$4\frac{1}{6}$	Brick walls; stone dressings; no columr
Dulwich Grove, S.E.....	570	3,529	6 3 10	$5\frac{2}{3}$	Brick walls; boarded ceilings; mould pressed brick; stone tracery; main a pressed brick; wooden columns to roof; brick and stone tiled turret.
Ditto, estimated cost, including future galleries and additional vestries	900	4,250	4 15 0	6	Ditto.
Poole-road, Bournemouth West	570	3,950	6 18 8	$4\frac{9}{10}$	Ditto, but with ladies' workroom, and brick and stone ventilating turret; ro
Ditto, estimated cost, including future galleries	800	4,400	5 10 0	$5\frac{3}{8}$	Ditto.
Bourton-on-the-Water..	320	1,800	5 12 6	$5\frac{1}{3}$	Rubble walls; stone piers and tracer lining; main arches of moulded presse boarded ceilings.
Westgate-road, Newcastle	850	5,236	6 3 4	$5\frac{1}{3}$	Stone walls with stone tracery and stc and arches; roofs of green Westmorla boarded ceilings; stone turret and marble baptistery and stone pulpit.
Jesmond, Newcastle (when end gallery is fitted up)	550	5,300	9 12 9	$7\frac{3}{8}$	Stone walls with stone nave piers and arches; roofs carried by cross arches central tower; stone pulpit; marble tery, and marble paving around covered with green Westmorland boarded ceilings.

It appears from these few examples (to which a great many more might have been added) that churches of the class *a* can be erected at a cost of £3 to £4 per sitting, and in some cases at a still lower rate. Those of the class *c* cost from £5 10s. upwards, and those of the mixed class, having main arches of brick or stone and the subordinate construction of the type *a*, from £4 10s. upwards.

It is also evident that it is not the most economical system, as regards first outlay, to build a structure lofty enough for galleries and not for the present to put them in. To do this increases the first cost by £1 per sitting, or sometimes more, though it is true that when this has once been done a large addition to the number of sittings can subsequently be made at very little expense. It is often desired to provide for the possible need of increased accommodation at some future time. Commonly there are two alternative ways of doing this—either by putting up a large building and afterwards inserting galleries, should this ever be necessary, or by putting up a smaller one and providing for its possible enlargement. The first way throws nearly the whole cost on the original congregation; the second way makes the original congregation pay only for what they require, leaving the later and enlarged congregation to do the same. The church on the second system is cheaper to build at first; but the sittings subsequently added will be obtained at a rate not much below that of the original ones.

A third plan has sometimes been adopted, which may occasionally combine the advantages of the other two. When a Sunday school is needed at the same time as a church, the latter building may be made large enough to contain both, and the two may be separated by a temporary wall. Then, when more sittings are needed, this wall is taken down, and the school sect thrown into the church, a separate bui being at the same time provided fo scholars. If, instead of a Sunday sch lecture hall is required, in addition t church, this plan is still more feasib separate lecture hall being built whe space occupied by the temporary c needed in the main building. Or, a classrooms for adult classes may be ob in a similar way.

Approximate estimates of cost are monly obtained by "cubing up" a bu from the plans—that is, by ascert how many cube feet it would cons supposing it to be solid. For this p it is usually measured from the bot the brick, or stone, footings upwarc the average height, in feet, is then mu by the length and width of the build feet. Where there is a spare roo straight sides, the average height building, or, more accurately speak that part of it which is so roofed, wi be measured from the bottom of t footings to a point half-way up the rc the building is irregular on plan, or of different parts roofed at different each part must, of course, be cu separately, and the various amounts together.

The same list of buildings which h given above to show their cost per sitt gives their cost per cube foot. To j this correctly before a building h erected, is, of course, one great diffi obtaining a trustworthy estimate by Where a small building and a lar contain exactly the same kind of wc smaller building is pretty sure to co per foot cube than the larger one, *in proportion to its contents*, it require wall and more roof. Prices also var with locality, and, as everyone fluctuate from time to time.

A SUGGESTION FOR PAVED

A CONSIDERABLE saving of in the matter of emptying gulleys might be made where the roa paved, either with stone or wood. T means do not apply to macadam broken-stone roads, but where the rc are paved the mud washed into the by the side of the footways in heavy of a different character to that fro surfaces. In macadamised roads the gritty and heavy, and it is theref

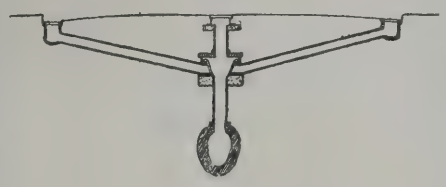
isable to let it get so far as the street ers, and it is caught at the sides of the l in catchpits beneath the gulley gratings. se are emptied in the street, the mud ıg got out of the catchpits with much our and trouble with scrapers, scoops, shovels, and filled into mud-carts, which brought to the place and stand there to illed, passing on from gulley to gulley. he heavy road detritus were to be allowed e washed into the sewers, it would lie there be a serious obstruction to the flow of proper sewage; it is too heavy to be oved by any but the strongest current in d times, and even then a single flood does carry it far towards the outfall, on ount of its slow movement along the tom of the sewer. Of course, something ends on the gradient in all cases, and the distance to the outfall in some; but general thing, a great portion of it lies the bottom of the sewer if once it is itted. Hence the catchpits and the otying by manual labour on the surface. in paved streets the case is different. mud washed into the gulleys is lighter, consists chiefly of horse-dung and other se organic matter of a light character, ch may be very well discharged at once the sewers without detriment to their per working; it is, in fact, merely sewage, ost as offensive as the house sewage lf, and should on that account be got rid nce for all as quickly as possible, by ıg carried down to the sewage outfall. ere there is a full supply of water to the ses, say, of 20 or 25 gallons per day per d of the population, there is always water ugh running in the sewers to carry this ıt mud along to the outfall, unless it be he extreme upper ends of branch sewers, here the flushing tanks effect what the ular water supply cannot do.

What is called the ventilation of sewers always been a difficulty. If the current air were to pass at all times in one ction, the difficulty would be much ened, if not wholly done away with; but direction of the air current is in some ree influenced by the direction of the d over the surface, and although the er air may at most times pass in one ction, it occasionally takes a contrary one. re is, however, so much inconvenience in wing it to pass from the sewers upwards ugh the street gulleys close to the foot- rs, that these are nearly always trapped prevent its escape there. Seeing, how- r, that the formation of foul air from age cannot be prevented, it is allowed to ape by vertical pipes covered by iron tings in the middle of the roadways, being less objectionable than escaping ugh the gulleys at the sides.

Proper ventilation, however, consists of a vision of special pipes carried up the se walls, and terminating above the s, in which case these vertical pipes in middle of the roadway become inlets of h air, which carries with it the foul air he sewers through the proper ventilating s provided as mentioned. Those ventila- in the middle of roadways sometimes sist of brick manhole shafts instead of es; but in either case their use in a per system of ventilation is to admit h air to the sewers, notwithstanding occasionally the sewer air may escape wards through them. When these happen be opposite the situation of the street leys, the gulley-pipes form branches n them; but more often, perhaps, the ley-pipes are carried into the sewers pendently, a vertical pipe being brought rom an oblique junction formed with the er.

n paved roads, if the washings of the face be allowed to run into the sewers n the side gulleys, the trap to the gulley- would be better at the junction with vertical-pipe (as shown in Fig. 1) than in the gulley itself, and a valve-trap there would be better than the ordinary overflow-trap at the gulley. The valve-box may be either of earthenware or iron, the iron door being planed in a lathe and faced with leather, and it will be practically air-tight, and prevent any foul air from the sewer passing up the branch-pipe to the gulley.

FIG. 1



If the outlet-pipe from the gulley be made 6in. in diameter, and the fall to the centre of the roadway 1 in 20, the heaviest rainfall would not fill it more than half full. Taking the gulleys on each side of the street to be 300ft. apart (which is more than the average), and half the width of the roadway to be 20ft., there would be 6,000sq.ft. of surface washed into each gulley. A rainfall of 2in. in an hour would average 1-30in. per minute; but during some minutes it might fall at twice the average rate, or 1-15in. per minute, in which case the quantity to be discharged by the pipe would be about 33c.ft. per minute. A 6in. pipe running half full with an inclination of 1 in 20 would convey 40c.ft. per minute. Therefore the valve-box at the lower end of each branch pipe from a gulley need not be laid at any great depth below the surface of the street, and may, when occasion requires, be reached from the surface. In the case of new streets which have been but recently laid out and not yet paved, although for convenience sake the sewer may have been laid down, the gulley grating cannot yet be fixed, and the arrangement above described will remain incomplete for a time, in which case a temporary catchpit may be made on

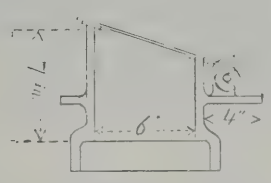


FIG. 2.

the upper side of each gulley, to be filled up when the street is paved. The gulley in this case would be covered with a 4in. flagstone, and the grating set over the temporary catchpit. The water from the road surface would flow through an opening in the side of the temporary catchpit into the gulley during the time the street might remain unpaved.

Fig. 2 would be a convenient form of valve-box if made in earthenware. C. S.

THE SOCIETY OF ARCHITECTS IN BELGIUM.—III.

WEDNESDAY in last week was devoted to a trip to Audenarde, and a most valuable day it proved, for the Hôtel de Ville, though the only building of exceptional interest in the town, is far the finest in Belgium both in position and design, nobly designed in rich yet dignified Late Gothic (1526—36), simply grouped in two flanks to a central tower having a small open-traceried crown, facing a magnificent open square, and with a stepped gable at either end. Within, the most noticeable feature is the Renaissance carved-wood entrance-screen and door to the council chamber, carved by Paul van der Scheldur, a native artist, in 1537, with the carving of its panels deeply undercut—a manly specimen of carving, displaying all a strong man's strength and gentleness combined. In this council chamber the Bourgmestre, M. Paul Raephsaet, welcomed his guests warmly, as did also his senior échevin, M. Edouard van Comwenberghe, who proved to be an excellent guide for the remainder of the day. In the front hall of the building the most noticeable feature was the manner in which the hearths of the rooms above were supported—by excellent groined vaulting; but the building possesses a second and larger hall in the rear, dating from the 11th century, with window openings skew on plan, so as to prevent the sunlight from ever penetrating, and with a noble timber roof having the apparently usual feature of a cut principal rafter, to allow of the collar being carried through, a lighter principal rising above the collar, which supports huge coupled purlins.

After the inspection of the Hôtel de Ville lunch was partaken of, and then a visit was paid to the Bourgmestre at his private house, to see a 16th century chimney-piece, and a reproduction of the door to the council chamber in the Hôtel de Ville, of which the panels are in cast bronze, well executed; and the tourists were informed that twenty of them are to be obtained at 50f. each on application. The two churches of the town were subsequently seen, that of Notre Dame de Pamell being a well restored 13th century edifice, with octagon tower over the crossing, and in the S. transept a long narrow lancet window carried right through the triforium, which it breaks. It has also an external gallery, like that to St. Jacques, Tournai. The church of St. Walburga, besides its lofty 14th century tower, now capped insignificantly since the spire was destroyed by lightning in 1803, is mainly interesting as showing what that of Notre Dame was like before M. von Assehe's restoration; for it is a Romanesque church, with all the voids filled in with brick and the projectious cut away to allow of the introduction, early in this century, of ill-designed plaster Renaissance decoration, whose designer was feasted royally on the completion of his work of vandalism. However, enough money has been raised for the proper restoration of the choir, which is to be commenced soon.

Courtrai, on Thursday, proved, in spite of appearing at first sight to contain little of interest, to be a most satisfactory town to visit, the rich colouring of the old houses, particularly those in the Béguinage, or Nunnery, of St. Elizabeth, and the picturesque tower to the old hall, rising above a block of modern buildings. The first official visit of the day was that to the Hôtel de Ville, where the members were received by the Bourgmestre. The exterior is extremely simple, almost meagre when compared with the other similar buildings seen already; but within it was a pleasant surprise to find two magnificent chimneypieces, Late Flamboyant in style, with Moorish, or, rather, Spanish, feeling displayed in the festooned cusping. They were erected in 1520, and have never been restored, though the room in which the better one stands has been recently decorated to harmonise with it, the walls being lined with fresco paintings by Swerts, Giffens, and Janssen, representing scenes in the history of the town—the departure of Baldwin of Flanders for the first crusade, and the swearing in of the citizens before the "Battle of the Spurs," a dark corner being most cleverly treated to show the detail as clearly as if the brightest light fell on it. The picturesque Watergate, with its museum, and the churches of Notre Dame and St. Martin were visited later in the day, but they possess little which is worthy of record in an architectural paper.

Friday, the last day of the excursion, was spent at Yves, and there the Bourgmestre, Baron Surmont de Vols Cerghe, received his visitors in the morning, conducting them over the great Cloth Hall, with its monotonous façade and bold central tower, which, begun in 1285, was finished in 1304, though the roof is of the 15th century. This is of the usual Belgian type, described already, but is of lighter appearance than are the earlier roofs, and covers a large ⊔-shaped chamber, of which the longer area alone is 460ft. by 38ft.—a truly magnificent apartment. Beneath its shorter area is the butter market, with a central row of rough and slightly-proportioned stone columns to support the timber floor above; but beneath the rest is the vegetable market, with brick-vaulted roof, into which cross vaults cut awkwardly from the eccentrically-placed windows. A few good details were seen in the museum close by; but many members

spent the afternoon in sketching the two or three quaint brick fronts which still exist in the town, more varied and more beautiful in their tracery than any seen during the whole fortnight, while an official visit was paid to the church of St. Martin, once the cathedral, a well-proportioned building, but uninteresting compared with others in the country. In the afternoon the members left for Ostend to return to England on Saturday, with a general feeling of architectural repletion, and of thankfulness for the kindness and hospitality which they have met with everywhere, as well from the officials of the smallest churches and town halls as from His Majesty the King of the Belgians, whose kindness in granting them an initial audience they will not readily forget. They carry away with them, though, a remembrance of rivers converted into open sewers, and of an absence of provision for the disposal of sewage, the cesspool and midden being general, which is by no means creditable to their Belgian friends.

HOT-WATER ENGINEERING.—XIII.

SUPPLY OF HOT WATER FOR BATHS AND DOMESTIC PURPOSES.

CONVERSION OF TANK TO CYLINDER SYSTEM.

IN undertaking this conversion, the chief expense, so far as materials are concerned, is the cylinder. Very little besides this is required. The existing services of the tank apparatus can be wholly utilised, and these without being disturbed, except at the upper and lower extremities. There are practically three ways of

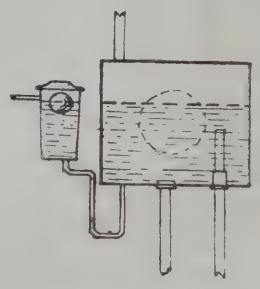


FIG. 40

doing this: one by totally displacing the tank, one by partially disconnecting it, and the other by letting it remain untouched, provided its size is suitable. The insertion of a cylinder at the customary position is, of course, necessary in any case.

Commencing with the latter method first, the reader is referred to Fig. 35 in the last paper, which, although described in another way, is practically a tank apparatus, with a cylinder inserted below. There is, however, one important thing in this latter arrangement which must not be overlooked. When an apparatus is newly erected with two reservoirs, as Fig. 35 just referred to, every care is taken that they be of correct size; that is, the two reservoirs together must be only of a size equal to one reservoir of an ordinary apparatus. Now if we attempt to insert a cylinder in at a low point of an existing tank apparatus as just suggested, it may be supposed that the existing tank will be of normal full size, and, therefore, the cylinder will increase the total reservoir capacity so as to lessen, or probably destroy, the efficiency of the apparatus. If the existing tank was 50 gallons, and this was the full and proper size for the boiler, then to add a 25-gallon cylinder would raise the reservoir water to 75 gallons, which is as much as should ever be put to the very largest range boiler.

It therefore follows that if it is proposed to convert a tank apparatus to the cylinder system by the insertion of a cylinder below, and the non-displacement of the tank, one of two things must transpire: either it must be found that the existing tank is fully small for the boiler, and will bear the addition of a second small sized reservoir; or it must be that a new range or boiler is about to be supplied of a larger or more efficient character, which will successfully cope with the old apparatus, together with the new reservoir. Of course, the amount of water in the existing tank ould be reduced (which would practically reduce its capacity) by putting a supply cistern at its side at a height to prevent its filling more than half or two-thirds full, as Fig. 40. This introduces the objectionable intermediate cistern and its ball-valve; but it is the only means we have of reducing and limiting the quantity of water in this upper reservoir, and by so doing

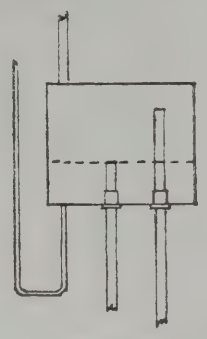


FIG. 41.

of permitting the insertion of the cylinder below under ordinary circumstances. In this case the termination of the flow-pipe in the tank would have to be lower, that is, about 4in. below the water level, instead of close up to the top.

Occasionally it is contended that the actual capacity of a tank can be reduced by permitting it to fill full up as usual, but terminating the *return* up towards the middle of the tank, as Fig. 41—one-fourth the way up if the tank is to be reduced one-fourth, or one-third the way up if one-third reduction, and so on. It is suggested that as the point at which the return terminates in the tank is the lowest point at which the water circulates, all water below the termination (or it would be more proper to call it the commencement) of the return is stagnant, and may be ignored the same as if a false bottom was carried across at this point. The dotted line in the illustration is this imaginary limit between active and stagnant water, the latter being looked upon as water quite inactive in every way, and to all intents and purposes absent. This supposed state of affairs is incorrect, not wholly so, but sufficiently to render the results less efficient than anticipated. The water below the dotted line does not remain stagnant, and it robs the warm water above of heat to a material extent. It is better to adopt the method shown at Fig. 222, when such is needed.

To convert a tank apparatus to the cylinder system, with the entire removal of the tank, the

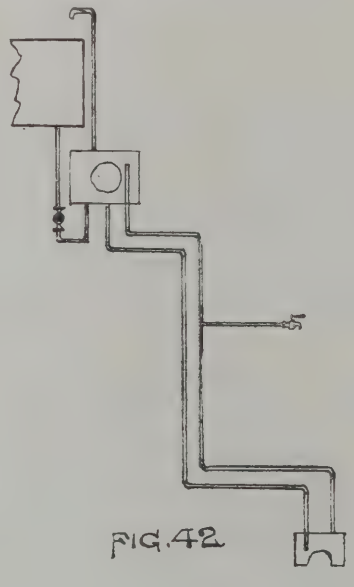


FIG. 42.

cylinder is inserted at the usual point, and in the usual manner already described; but in this case the cylinder must be of full size, having no auxiliary reservoir, as in the method just described. If the displaced tank was of good and sufficient strength, there would be no need to provide a cylinder, for, as explained in the Cylinder System (Paper VI.), a tank will an as a reservoir in the cylinder system just as as a cylinder, provided it is strong enou bear the pressure, the square shape of the being much weaker than the cylindrical sh In this case the expense would be for la only, except one or two new fittings and nections that might be required.

Fig. 42 shows a tank apparatus of a si and ordinary character, and Fig. 43 show same apparatus converted. The original and return have to be cut at the point whe cylinder is intended to come, and are conn up in the usual way, as shown. The rema of the flow and return pipes above the cyl (after the tank is removed) are converted i rising main service and a cold supply pip spectively. The original flow-pipe answer the former, having its lower extremity nected into the top of the cylinder, and a top it is joined on to the original expansion of the tank, as shown. This pipe is now pleted as a single-pipe rising main; if a ret needed to it, then one of the different me explained in Paper VIII. must be adopted is not necessary to repeat the information he

The original return is converted into a supply service, being joined to the origina service at the top, as shown, and carried in bottom of the cylinder at the lower extre

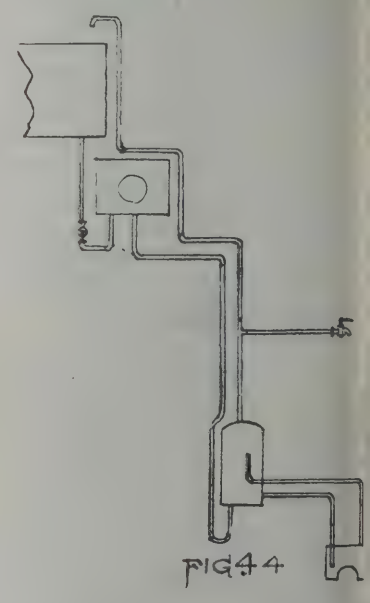


FIG 44

This leaves the stop-cock situated up at the the house, which is contrary to the sugg made when treating the cylinder syste could be readily removed and re-fixed at point if desired. This is the most usual n of conversion, and simple, but not so simp inexpensive as the next method about described, if the tank can be left and required for any other purpose.

In the method of conversion that wa scribed as with partial disconnection of the it is arranged for the tank to remain original position, and act as an auxiliary water cistern. Fig. 44 shows this metho will be seen that, as in the last method (Fi the original flow and return are cut, ar cylinder inserted in the usual positio connected up in the customary way. The part of the original flow is converted into a rising main, being connected to the top cylinder at its lower extremity, and joined original expansion pipe at the top. Thus conversion is carried out in precisely the manner as the last apparatus. Now, ins removing the tank, it is left undisturbed af flow and expansion pipes have been remove the holes stopped. It remains, as the ill tion shows, with the cold-supply pipe l into it, and the original return leading fr but this latter pipe has now to be consider cold-supply service, and its lower extrem carried into the bottom of the cylinder.

In this case it would be more desirabl ever to put the stop-cock just beneat cylinder; otherwise, when cleaning or have to be done, the contents of the tank, as the cylinder, will have to be withdraw course, the only reason for limiting as m

isible the amount of water to be withdrawn is effect a saving in time and trouble. It some-ies proves an awkward and tedious job empty out this quantity of water, par-ularly if the tap be a small size and in-veniently situated. If the tap was over ink, the task would be simple, and a little ra water could be disposed of easily. It never ms the correct thing to waste a bulk of water, l, of course, such a waste cannot be tolerated country residences where the supply is nped, and perhaps limited as to quantity. This last method of conversion only provides a gle rising main service, the same as the vious one explained. If it has to be returned, n a new service must be run down to the inder, entering it at a high point, as previously ntioned. It will have been noticed that

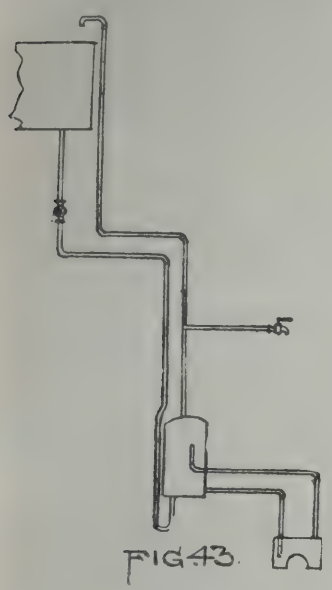
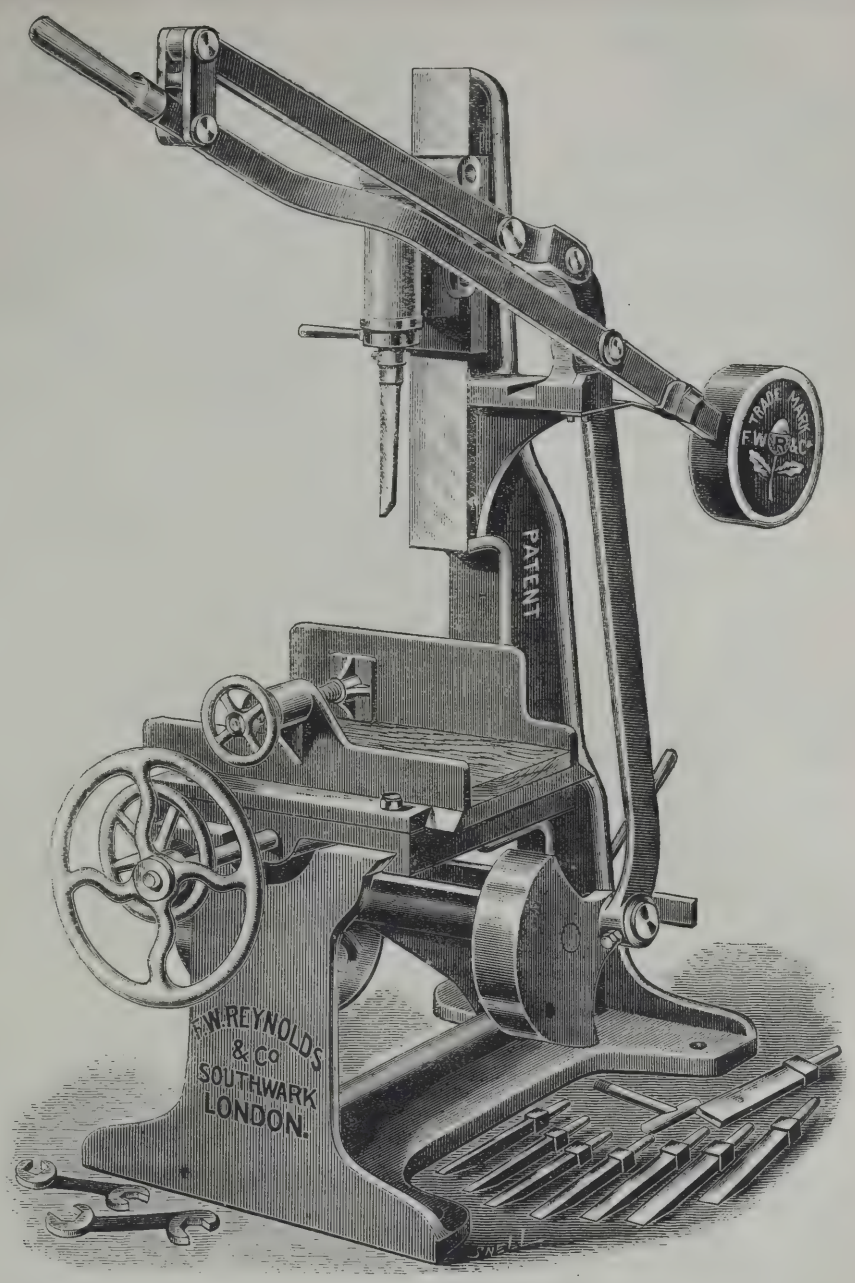


FIG 43.

less for some special convenience), no draw-services need be interfered with, for the flow-e to which they were all connected is con-ed into a rising main service, and this latter he correct pipe for the draw-offs to be ched to in the cylinder system.

AMERICAN ENGINEERING.

A FEW instructive papers appear in the *Transactions* of the American Society of il Engineers. The report of the committee the cause of the failure of the South Fork n is a lengthy report, illustrated by several tes taken from photographs, showing the eck of the bridge of the Pennsylvania Rail-l over the Juniata river, Lewistown, and the roundings of the broken dam which caused so ch havoc and loss of life. The report asserts t the dam itself was well and thoroughly lt, and would have resisted the pressure of er, and that the failure was due to the dequate wasteway and the great flood. The lway had not a sufficient discharging acity, "contrary to the original specification Mr. W. E. Morris, which required a width of rflow of 150ft., and a depth of 10ft. below t; it had only an effective width of 70ft., a depth of 8ft. The accumulated water rose uch a height as to overflow the crest of the n, and caused it to collapse by washing it vn from the top." Such a rainfall had not en place since the construction. The rise of water was about 30ft., and the flood ried away in its furious progress all the dges between South Fork and Johnstown, the embankments, and caused a fearful of human life and the destruction of vate property amounting to millions of dollars. e report and data furnished are of value. The endix gives estimates of the discharge ough the wasteway and sluice pipes. The ort is signed by James B. Francis, W. E. rthen, M. J. Becker, and A. F. Feley. The ult of the dire catastrophe, unexampled in nt times, should be a warning to engineers companies to take into account excessive ds by providing waste channels of sufficient size to meet such emergencies. The next paper, by J. Foster Crowell, is on the Ravine du Sud, in the Island of Hayti, and a plan for averting its overthrow. The methods of bank protection proposed are shown by plans and sections. The "Nozzle as an Accurate Water-Meter," by John R. Freeman, "The False Ellipse reduced by Equations of Condition," by Arthur S. C. Würtele, are other papers. Those who are interested in hydraulic works will find the June number of the *Transactions* instructive reading.



AN IMPROVED HAND AND POWER MORTISING MACHINE.

A VERY useful form of mortising machine has been patented by Messrs. F. W. Reynolds and Co., engineers, of the Acorn Works, Edward-street, Blackfriars-road, which has the great advantage of being worked either by hand or driven by power. We have seen the machine in operation when driven by belt from an engine. By a double-link arrangement of levers, the requisite vertical motion is obtained in a very simple and direct manner. The connecting-rod attached to crank-shaft actuates the rocking-bar carrying the chisel-holder, which thus works in its guides without touching the wood. To bring the chisel into action, the hand-lever is brought down to the work and simply held still by the right hand, the left hand being applied to the hand-wheel to move the work along the sliding bed. No exertion is required in this operation while the motive power is used, and it is stated that when thus driven the machine will turn out four or five times more work than can be done with the ordinary hand-mortising machine. But the value of Messrs. Reynolds and Co.'s machine is that in small joinery works it can be made available for either power, and especially in workshops where the motive power is not in constant use. This can be done by simply inserting a T-screw into one of the two holes in the counterbalance of the crank. The hand lever is then brought down to its work, and the mortise manipulated in the ordinary manner. Thus the machine is of far more value than if worked singly by hand or by power, and its cost, complete with six chisels, is only nineteen guineas. It is fitted with fast and loose driving pulleys, and striking gear for belt. A boring apparatus with three augers can be fitted, if desired, to the chisel holder, and we can confidently recommend the machine to the attention of all builders, joiners, and contractors, who will find it one of the most useful machines for power-mortising, capable of making a mortise 11in. deep, and taking stuff $4\frac{3}{4}$in. wide.

Marlborough-square Chapel, South Kensington, has just been reopened. The building has been restored and decorated from the designs of Mr. Maurice B. Adams, F.R.I.B.A. The roofs have been renewed and the fabric repaired. The structural improvements were carried out by Mr. Warren Smith, of College-street, Fulham-road, and the other work has been executed by Messrs. Adamson and Sons. The trustees paid for the restoration, and Mr. C. J. Humphreys became responsible for the cost of the painting and decoration. The chapel was erected about forty years ago.

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ILLUSTRATIONS.

ST. PAUL'S, FROM THE THAMES.—SALISBURY CATHEDRAL.—NO. XXIII. BERKELEY-SQUARE.—NEW BRIGHTON STATION.—DESIGNS FOR THE NEW SOUTH KENSINGTON MUSEUM BUILDINGS, BY MR. T. G. JACKSON AND MR. MERVYN MACARTNEY.—MADAM PATTI'S THEATRE AT CRAIG-Y-NOS CASTLE.—SOME OLD FRENCH FURNITURE.

Our Illustrations.

VIEWS OF ST. PAUL'S AND SALISBURY CATHEDRALS.

MR. PAUL DELARNE, of Paris, has lately brought out a series of clever etchings by Mr. Lucien Gautier, illustrative of the cathedrals and other historic buildings in this country,* and to-day we are enabled to present our readers with two reproductions representing these familiar examples of English architecture. St. Paul's from no point of view looks so grand and imposing as it does from over the river, with the waterside warehouses and wharfs grouping at its base, set off by busy craft and shipping, as shown in this picture. Salisbury is also represented by Mr. Gautier from the most favourite standpoint, looking across the water meads north-west of the cathedral. As contrasts, no more typical specimens of church building could be placed side by side, the one dominating with its grandeur of breadth the heart of the great city, the other rising with aspiring grace and exquisite elegance midst the quietude of a country town surrounded by trees and meadow pools. Among the other etchings issued in this capital series are views of Canterbury, Durham, Peterborough, Norwich, and York Cathedrals, the Tower of London, Westminster Abbey, and the Houses of Parliament, besides other equally satisfactory pictures from Italy and France, all drawn to uniform scale.

NO. XXIII. BERKELEY-SQUARE.

THIS house, which has been rebuilt upon the site occupied by a similar house to that on the left of the picture, is just nearing completion. It is faced with Portland stone and Bracknell rubber bricks, and has been carried out by Messrs. Prestige and Co., of Pimlico, from the designs of Messrs. J. T. Wimperis and Arber, architects, 25, Sackville-street, Piccadilly.

NEW BRIGHTON STATION.

THE elevations and plans of this station on the Seacombe, Hoylake, and Deeside Railway explain themselves. The architects were Messrs. Bell and Roper.

SOUTH KENSINGTON MUSEUM COMPETITION.

WE thus far complete to-day the illustration of each of the eight schemes submitted in this great competition by giving views and plans of the remaining two designs, which, although illustrated last, are by no means the least interesting of the series. Mr. T. G. Jackson, M.A., is the author of one, and Mr. Mervyn Macartney, M.A., of the other. The selected design, by Mr. Aston Webb, was published by us on August 7th and on the 14th, when we also gave Mr. Emerson's; on the 21st Mr. Collcutt's and Mr. Belcher's designs appeared, and last week we gave those by Messrs. William Young and Sir T. N. Deane and Son. We propose to continue our series by reproducing the more characteristic of the various interior views submitted.

* Paris: Paul Delarne, 5, Rue de l'Echelle. London: H. G. Lugard, 15, Percy-street, W.

THE PATTI THEATRE.

WE give the principal elevation and plan of Madame Patti's new theatre at Craig-y-Nos, recently inaugurated. Little need be said of the exterior, which has been kept purposely plain. The chief entrance is not from the outside direct, but by way of the Castle, Madame Patti-Nicolini having in view primarily the entertainment of her guests. The movable floor of the auditorium is, perhaps, the most noticeable feature in the theatre. For theatrical purposes it inclines towards the stage; but it is capable of being raised to a level with the latter when desired, thus providing a ball-room of 62ft. in length at short notice. The auditorium holds 180 persons; the first few rows of chairs have arms, and are covered with blue silk plush. The rear of the building is curved, with a small gallery over for a few extra visitors. The orchestra is separated from the auditorium by a balustrade, and will hold a band of sixteen performers. It is sunk 6ft. below the stage level. The proscenium is 20ft. wide and 19ft. high, the stage being 24ft. deep and 40ft. wide. Behind the stage are five dressing-rooms. The lighting arrangements, which are by means of electroliers, are of an extensive and luxurious character. The total number of lights is 281, and all these are under the control of the prompter, who can, by switch arrangements, produce many striking effects from coloured lamps. The wall-surface of the theatre is divided into panels by Corinthian columns, and is crowned by a coved ceiling. The architects are Messrs. Jennings and Bucknall, of Swansea and London. The builder was Mr. H. Smith, of Kidderminster. The plaster work was done by Messrs. Jackson and Sons, of London, and the decorations by Mr. Jas. Casas; while the electric lighting has been carried out by the Wenham Light Company.

OLD FRENCH FURNITURE.

ONE of the most important sales of the season in the way of valuable furniture was that of the late Right Hon. Cavendish-Bentinck's collection at Christie's. The high prices realised show the great estimation in which genuine French cabinet-work is held, though we fear these fine examples are fast drifting out of this country into the homes of American millionaires. The oval Marqueterie Table in the accompanying illustration is fitted up with writing-slide and drawers, and inlaid with flowers in coloured woods. It is the work of David de Luneville, a contemporary of Riesener. The well-designed Bonheur de Jour Writing Table, a marvel of elegance and dainty workmanship, contains the usual writing slide and drawer, and in addition two cupboards above. It is richly inlaid with vases of flowers, books, music, and utensils, and is mounted with chased ormolu work. The fine Louis XVI. Commode is divided into two large drawers below, with smaller ones above. It is inlaid with wreaths of foliage, and the centre contains the letter H. The friezes and other ornaments are in chased ormolu. The whole is surmounted by a marble slab. It is 3ft. 5in. in length, and is signed "Fait par George Hougot Eben du Roi à Stockholm l'an 1776."

The Caledonian Railway Company has let the contract for the construction of a new branch from Edinburgh to Barnton. The line will be two miles five furlongs in length, and commences at Craigleith Station, branching off from the Granton line in a north-westerly direction. The line will require some ten bridges, and will present no great engineering difficulties. It will take about a year to construct.

An addition has just been made to the series of stained-glass windows in Truro Cathedral. The window—a memorial—is in the north aisle of the choir, and the subject forms another link in the series planned to illustrate the history of the Church. The principal figure is that of St. Ambrose, clothed in Episcopal vestments and mitre, and holding in his hand the scourge of discipline. On either side of him are seated St. Monica and her son, St. Augustine, the latter being vested as a bishop. Below is shown the Emperor Theodosius, doing penance before St. Ambrose, the great Bishop of Milan.

COMPETITIONS.

GLASGOW.—The executive of the Associat for the Promotion of Music and Art in Glasg have completed the arrangements for the first preliminary competition for designs from arc tects for the new Art and Music Galleries Kelvingrove Park. When issued, the instr tions to competing architects will stipulate the limitation of the cost of the structure £120,000. The chief feature of the building be a central hall with a floorage of from 8,00 10,000 square feet, and there will also be su of art galleries for exhibition, lecture, and sch purposes, museum, mechanical workshop, administrative offices. In connection with preliminary competition, designs will requir be sent in by November, and after a short has been elected a final competition will t place, most probably in March next.

SOUTHAMPTON.—Thirty-seven designs h been received for the public library at Southa ton. The award will be made next Mond after which the designs will be on public vi Mr. W. Henman is the professional referee.

CHIPS.

Mr. Francis Parr, late assistant to Mr. Ar Thorne, architect, of Barnstaple, has been appoi surveyor to the town council of Bridgwater. T were 130 applicants for the post.

The parish church of St. Edith's, Grimoldby, been reopened after internal restoration. The Mr. Ernest W. Farebrother, F.R.I.B.A., prep the plans, and the work has been carried ou Mr. H. Marrows, contractor, Grimsby, under supervision of Mr. H. C. Scaping, archi Grimsby. The seats are of wainscot oak, P style. Most of the old carved tracery foun different parts of the church has been utilise the decoration of the screen and the base of pulpit.

A new Wesleyan infants' school is being ere at Leyland, memorial-stones of which were lai the 22nd ult. Mr. T. Jackson and Mr. A. Ton son, of Leyland, are the contractors, and Mr Hugill Dinsley, of Chorley, is the architect.

The last excursion of the present session of Archæological Section of the Birmingham and land Institute took place on Saturday, when members visited the Doveridge Mill and Chu Somersal Herbert Hall (a fine old half-timb house), Somersal Herbert Church, Sudbury Ha Jacobean mansion) and Church.

On Wednesday week the corner-stone of a wing to be added to the Boscombe Hospital laid. The buildings are being erected by M Walden, of Bournemouth, at a cost of £350.

The foundation-stone of a Masonic hall wa at Budleigh Salterton on Wednesday week. shipful Brother W. H. Stichland is the hon. a tect, and Brother Hayman the builder.

At a meeting of the Nairnshire County Co on Friday the appointment of road surveyo sanitary inspector was made. There were 50 a cants, and Mr. David M'Kenzie, Biggleswade, fordshire, was unanimously appointed.

The statue of the late James White, of Over unveiled in Cathedral-square, Glasgow, is of br and stands on a pedestal of Aberdeen granite. statue was begun by the late John Mossman has been completed by Mr. Frank Leslie.

The Duchess of Albany will open the new b ings forming the extension of the Printers' A houses, at Wood Green, in October.

It is definitely arranged that Captain Shaw take leave of the Metropolitan Fire Brigade o 1st of November next.

The collection of Trojan antiquities beque by the late Dr. Schliemann to the City of Berli been packed in Athens, preparatory to despatch to Berlin. They fill fifty large cases.

Memorial stones of a new Primitive Meth chapel were laid on the 15th ult. at Standish. T. Crook, of Chorley, is the builder, and M Hugill Dinsley, of Chorley, is the architect.

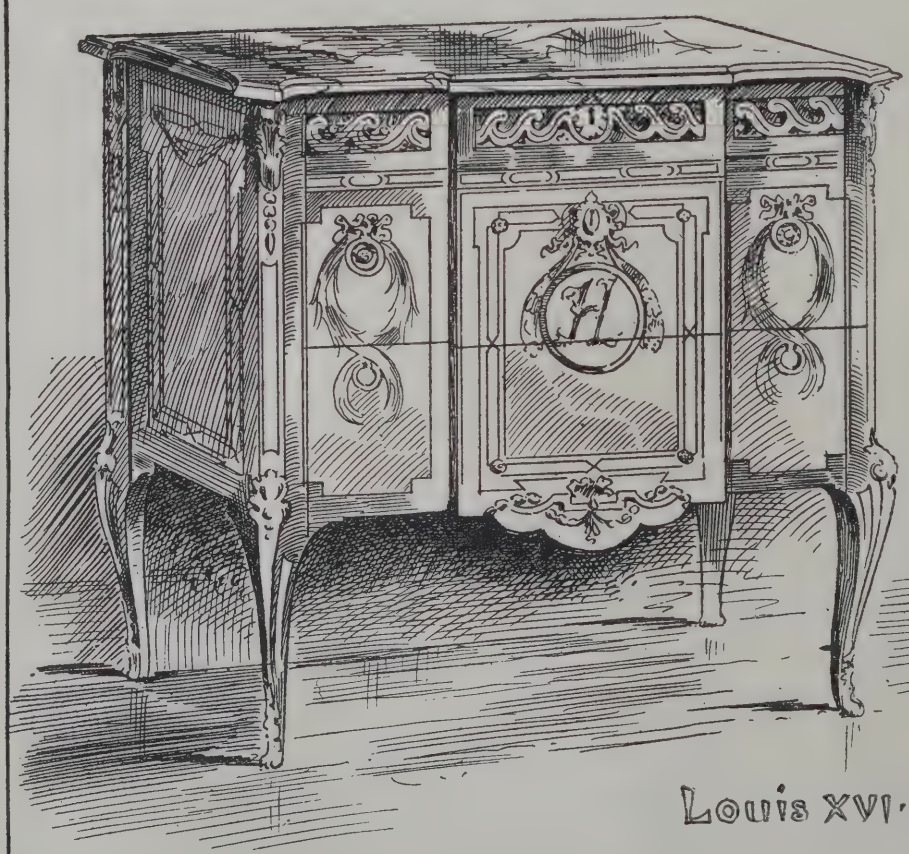
Messrs. Whitaker Bros., Limited, of Hors the contractors for the widening of the Northern Railway between Bramley and Wo near Leeds, began the work on Monday. company have allowed two years for the pletion of the works, which include the p down and rebuilding of a number of bridg four lines instead of two, as at present, and widening according to the requirements Leeds Corporation, and also the construction second tunnel to run alongside the one alre existence at Armley. The cost is estimat between £70,000 and £80,000.

Louis XV. Bonheur-de-Jour Writing Table.





Oval Marqueterie Table

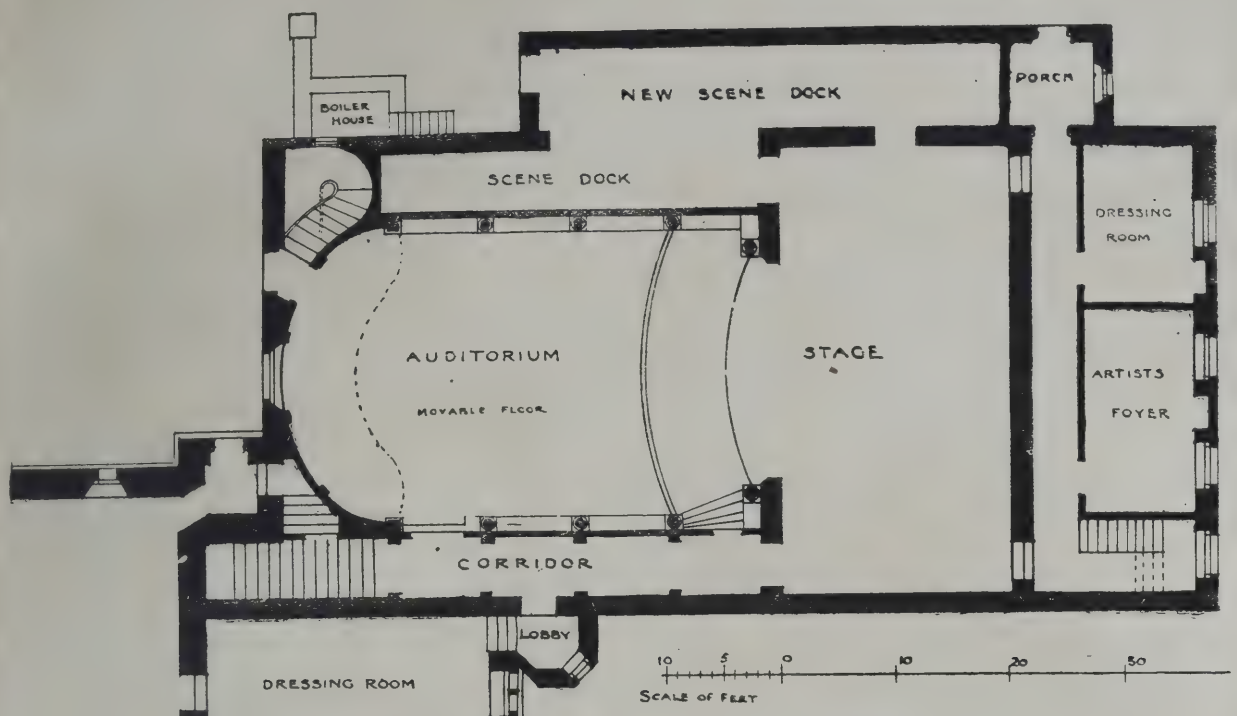


OLD FRENCH FURNITURE.

Louis XVI. Commode

E. Chancellor. Sc.

Dellagana



GROUND · PLAN ·

BASEMENT OF FRENCH BILLIARD RM

BASEMENT OF ENGLISH BILLIARD RM

MESSRS BUCKNALL & JENNINGS
ARCHITECTS
LONDON & SWANSEA

MADAME · PATTI'S THEATRE AT CRAIG-Y-NOS · CASTLE



ELEVATION · FACING · COURTYARD



WAYSIDE NOTES.

TROLLING along along the beach from Deal in the direction of Sandwich, we come on the ruins of Sandown Castle, historically eresting, architectural, and picturesque withal, l, when I saw them some two years ago, erably defiant of the boisterous winter seas. sonry and other concrete constructions, how- r, have but a poor chance against wind and ves in the long-run, more particularly when ir repair is neglected; and wind and wave, it ears, are working havoc at Sandown. The ns of Sandown Castle, I read, are "rapidly appearing," and unless measures are taken to vent their destruction, there will presently be thing left of the old pile beyond the site and name. Some days ago over fifty tons of erhanging masonry fell on to the beach below, e foundations having been undermined by the tion of the tide. This neglect of Sandown stle is much to be regretted. It is not a chester or a Conway Castle; but it has its own e to tell in the several languages of art, chæology, and history, and forming an interest- g object to visitors to the district, and a lcome addition to the architectural relics of st Kent; it deserves to be protected by such may have authority over its venerable stones. at authority is apparently the War Office, ice, at a recent meeting of the Deal Town uncil, the councillors decided to call the tention of the department to the present con- tion of the ruins.

Some time back I alluded to the remarkable ins discovered at Zimbabye, in Mashonaland. rther information regarding these mysterious frican constructions comes to hand through a ivate letter received from a gentleman who s recently visited the ruins, interesting pas- ges from which have been published in the ilies. Mr. Theodore Bent, the writer of the tter, says of the round wall and tower, that It is a large phallus. The wall and tower e unique. The former is in some places 40ft. gh and 16ft. thick, and shows two periods of nstruction. Nothing was found in the temple cept recent Kaffir implements and pottery, hich show that the Kaffirs evidently entered to possession after the original people left, and at they removed every possible vestige of any evious race." Mr. Bent found no inscriptions the ruins; but thought it plain that the ople who built them were phallic-worshippers, phalli of all shapes and sizes have been un- rthed daily. Mr. Bent is now making dis- veries on the hill above the lower temple, here are even more interesting and wonderful ins of similar age, style, and construction. he finds already made comprise a small altar ith three phalli on it, enormous walls, narrow ssages, steps, arches, and walled-up caves, nd among the prizes unearthed are two huge owls, one with a splendid frieze portraying a nting scene, the group consisting of four aggas, with a hunter, who has discharged an row into the nearest quagga, and who is hold- g in one hand a hound in leash, while behind e hound are two elephants. Further dis- veries include some green Persian pottery and copper plate covered with gold. Evidently ese Zimbabye ruins are of no ordinary kind, d will prove most interesting, besides yielding any actual treasures of ancient art. We shall patiently wait some more complete account as the probable builders of the buildings now in ins, and of the nature and habits of the people their times.

The romance of the River Rhine, wails the *aturday*, has gone. Tell it not to "Goth"; ublish it not in the columns of the BUILDING EWS! For to the architect the castles of e Rhine, Rhinestein, the Drachenfels, and e Lorelei Rock, seem to be the very essence of mance in architecture—old German romance—type of romance as in this country we may look r in vain, finding nothing of an exactly corre- onding nature. What is the *Saturday's* com- aint? That the streams where the angler ight cast his flies for the lively trout or sluggish ayling, in the swift rush or swirl of the dark ill pool, are now poached or netted for the eighbouring pension or hydropathic establish- ent; and that the moss-grown mills "may obably" have given place to some many- pried structure, poisoning the water with leterious chemicals. In the once quiet Aar Valley the Apollinaris Company have created a busy industry, with fleets of shallow steamers. "The whole course of what used to be called the castled Rhine, now looks like the lower Thames, and smells like Shoreditch or Bermondsey . . . The steamer carries you through volumes of smoke, between a double line of cloth mills, chemical works, limekilns, and brickfields. . . . The spirited proprietors of these enterprises have been rapidly growing rich, and have . . . been trans- mogrifying and adding to venerable castles; they have been running-up sumptuous mansions of the florid Composite order in the suburbs of the cities, and one of the most audacious of the *nouveaux riches* has actually seated himself on the summit of the castled crag of the Drachen- fels."

There is a vast deal of satisfaction in explain- ing some point in a mystery that has not been cleared up in the public Press, and the cost is nominal unless one happens to unearth a "mare's nest." I may have found one now; but I will, nevertheless, make a suggestion as to the cause, or partial cause, of the recent railway accident at Ramsgate Station, L.C.D.Ry. It will be remembered that the train descending the sharp incline through the tunnel from Broad- stairs to Ramsgate was composed of Great Northern carriages. All who know this line are aware that the incline is really sharp and necessitates caution on the part of the driver of the train. Now, a train of L.C.D.R. carriages as against a train of Great Northern carriages, weight for weight—judging by the appearance of their build—cannot amount to the gross weight of the latter by, I should say, at the very least, 25 per cent. Consequently, a driver running down the hill through the tunnel and allowing brake-power sufficient for a train of carriages such as he is daily accustomed to drive, might find himself gaining an impetus beyond his power of control. This, of course, pre- supposes an inadvertence on the part of the driver—an excusable inadvertence, such as we are all liable to when placed in circumstances necessitating the adoption of measures which, by long contrary custom, we have not been used to.

One of the busiest scenes in London at the present time is the work at the new extension of Liverpool-street Station. I had a peep the other day of these operations from the elevated position of the North London Railway, and the bird's- eye view disclosed an extent of building opera- tions quite refreshing, at a slack season and an era of artisans' strikes.

The new Trans-Alpine Railway is to be com- menced shortly with a large capital and lengthy tunnel. The railway is to take about eight years for its construction and completion.

"A. A. Notes" to hand, and not a vast deal in it. Being an "off" season, one, perhaps, is not surprised or disappointed. The most pleasantly readable contribution will doubtless be the account of the excursion into Shropshire. "The premises question," says a note, "has been settled by taking temporary premises at 56, Great Marlborough-street, for the studio and classrooms"; and it is further stated that the committee have been fortunate in securing the assistance of first-rate lecturers and instructors. Professor Kerr will take some classes, and, moreover, returns his fees as a donation to the general fund! Mr. F. R. Farrow gives up his private classes to teach at the Association; Mr. R. Elsey Smith will lecture on the Orders and Classical ornament. The indefatigable Mr. R. W. Schultz takes the junior students in the studio, and Mr. J. A. Slater will take the senior students. Dr. Holmes, and Messrs. Moody and Hancock will be the chief instructors in the more scientific subjects.

A charming little vignette, by Mr. Herbert Railton, was published in the *Illustrated London News* last week. It represents the old houses in Fleet-street—just west of Fetter-lane—which, it is said, are to be pulled down. Architects should have a good look at them before they disappear. They are wonderfully picturesque, with their quaint Ionic pilasters and projecting balconies. The City authorities, who have compassed their destruction, don't seem to see the picturesque side of the question, and have ordered their early demolition.

Super lime-whiting extraordinary. The other morning the inhabitants of the village of Minster- in-Sheppey, near Sherness, awoke to find their windows and doors covered with whitewash. Two young cads — visitors — disappeared from the village that morning. If these practical jokers had been tarred-and-feathed, the incident would have been rendered still more humorous.

GOTH.

AN INCIDENT OF THE BUILDING TRADE STRIKE.

EVERYTHING has for some considerable time been ready for the reception of tenders for the erection of the New Admiralty Buildings in Whitehall, and the quantities were completed weeks ago; but in consequence of the strike in the building trade in London, the Government are unable to enter into any con- tracts for this great national work. The risk of doing so is considered so great as to warrant this delay, even although heavy rents necessarily are being paid by the Department for the accommo- dation of the staff, whose offices were demolished in Spring Gardens when the site was cleared years ago. The interest, too, on the large amount of money expended on the foundations of the new buildings carried out by Messrs. Mowlem last year must be also taken into con- sideration. Such a deadlock as this undoubtedly is of disadvantage all round, to the trade particularly, and to the public interest.

CHIPS.

A carpenter, named Hugh Smith, met with his death on Friday at the saw mills of Messrs. Dunlop Brothers, Belfast. Whilst Smith was working near a circular saw, the drum burst, and one of the pieces carried away the upper portion of his skull, causing instantaneous death.

Colonel John Ord Hasted, R.E., an inspector of the Local Government Board, held an inquiry at Radcliffe Colliery on Friday, the 28th ult., concern- ing the application made by the Alnwick Union rural sanitary authority for sanction to borrow £3,180 for works of water supply for the contri- butory places of Hauxley, Togston, and Warkworth, Northumberland, and received the evidence of persons interested in the matter. Mr. M. Temple Wilson, the surveyor to the authority, explained the plans.

A new hotel at Kingswood, near Bristol, was for- mally opened on Friday. It has been built for a limited liability company by Mr. J. James, of Stapleton-road, Bristol.

The Council of the Yorkshire College, Leeds, have unanimously appointed to the post of lecturer on sanitary engineering, Mr. William Spinks, A.M.I.C.E., of the firm of Spinks and Beever, civil engineers, Manchester and Warrington. The creation of the post is the outcome of a grant from the West Riding County Council, in aid of technical education, and in furtherance of the scheme it is intended to deliver a course of evening lectures in some of the largest towns of the West Riding. The appointment was open to public competition. Mr. Spinks was articled to the late Mr. R. Vawser, the borough surveyor of Warrington.

Campsie House Convalescent Home, Mussel- burgh, was reopened on Saturday, after alterations and enlargements carried out from designs by Mr. McLachlan, architect, of Edinburgh.

The ruins of Sandown Castle on the beach of Deal are rapidly disappearing, and unless prompt measures are taken, in a very short time all that will remain of the historic pile will be the site and the name. A few days ago an overhanging section, weighing over 50 tons, fell to the beach, the foundations having become undermined by the action of the tide, and at a meeting of the Deal Town Council on Monday evening it was decided to call the attention of the War Office authorities to the present condition of the ruins.

It is proposed to hold a great exhibition of rail- way plant and materials in St. Petersburg next year.

The recumbent marble statue of the late Emperor Frederick, which has been executed by Prof. Begas in Italy, and which is intended for the mausoleum of the Friedenskirche, Potsdam, is now finished, and will shortly be conveyed to Germany.

The members of the Architectural Association will pay a Saturday afternoon visit on the 26th inst. to Poles, Herts. This mansion, built for Mr. E. S. Hanbury, from the designs of Messrs. Ernest George and Peto, was illustrated in our issue of the 15th May last by a sketch from Mr. Ernest George's pen of the interior of the hall. Messrs. J. Simp- son and Son, of Paddington-street, W., were the builders.

HOW TREES ARE UNROLLED.

WE have lately heard a new manufacture vaguely referred to, in which wood is cut in a very curious way—a species of sawing, though no saw is visible—a cooper's shop, which contains everything save the staves. Recently a meeting of the Society of Industrial Engineers of Belgium at Merxem furnished the occasion for a visit to the little factory of Mr. Oncken. The object of the visit was to see the manufacture of casks in one piece. Given the trunk of a tree one mètre long by 40 centimètres in diameter, to cut or unroll it, not in numerous little planks of various sizes, but in one long plank or leaf a mètre wide and 10, 20, 50 mètres long, and without making any sawdust in the operation; in short, to cut out the whole interior of the trunk in a single sheet, and of extreme flexibility. The machine that carries out this invention is called the "Oncken Box and Barrel Machine."

The following is the method:—Gigantic poplars are sawn into portions of three-quarter or one mètre in length, according to the size of the machine that is to be used. These are then placed in immense boilers similar in shape to the boiler of a locomotive. The boiler being shut, water is then introduced, and is made to boil by means of a jet of steam thrown in by a tube communicating with the generator. The water is allowed to boil for two or three hours or more.

After the boiler is shut, electric wires in connection with a dynamo are fixed to the cover (the manufactory is lighted by electricity), and during the whole of the time the water is boiling it is thoroughly electrified. The chemical action thus produced, in combination with the prolonged boiling, gives to the wood the necessary softness, so that the knife may cut it without difficulty. The trunks are then stripped, and hoisted by the aid of a pulley. When opposite the cutting-tool, they are seized between two forks, and the machine is set in motion. The trunk is now scraping against a knife a mètre broad, and turning on its own axis with great rapidity. The machine now automatically advances, the knife descends and cuts a plank (or rather a sheet of soft wood) varying in thickness from one-fifth of a millimètre to fifteen millimètres, which then passes through a slot, and is taken by two workmen to the other end of the machine. The trunk turning very quickly, the men have as much as they can do to seize the continuous folds or sheets of wood as they fall through the slot.

The invention is a remarkable one. The sheets, or leaves (which can be made to attain fabulous lengths), are unrolled from a cylinder of wood barely able to produce planks of three to four decimètres in width. The sheet of wood thus obtained is then cut into lengths to make the small barrels, about 75 centimètres high, which are used for the carriage of fats, cement, colours, white lead, and powders of various kinds.

The sheet then passes between the rollers of a second machine, which cuts at one stroke a groove. This groove is intended to receive the bottoms of the barrels. A third tool seizes the sheet between two arms, and by the aid of knives cuts a series of mortises or slots round the sides. These slots, or mortises, when the sheet is made up into a barrel, give it the usual conical shape. A fourth tool rolls the sheet into a cylindrical form by means of iron grooves. Eventually the sheet reaches the cooper, who hoops it and renders it a perfect barrel. The machine will also cut wood into leaves or sheets for the manufacture of boxes. A very ingenious drying apparatus, which extracts all moisture from the barrels, and a second system of drying, which is operated by means of a ventilator worked by steam, renders the barrels fit and ready for exportation. The machine also cuts, after the same system, very thin sheets of cedar or other expensive woods, which are glued or pasted on to cheaper woods for the use of cabinet-makers. The present machine will only cut sheets three-quarters of a mètre wide, but there will be no delay in erecting a machine that will produce sheets of one mètre in width. A machine of the latter size has already been set up in Germany. Further particulars can be obtained, and samples of wood cut and veneered, also barrels made under these patents, together with a model of the wood-cutting machine, may be seen at the offices of the "Oncken" Patents Syndicate, 10, Old Jewry Chambers, London, E.C.

Engineering Notes.

NORTH BRITISH RAILWAY EXTENSIONS.—The new line of the North British Railway Company from Alloa to Kincardine is now about half finished, and is expected to be completed by next summer. The railway is a single line, about 4½ miles in length. It leaves the Stirling and Dunfermline line about 1¼ miles east of Alloa, passes close to Clackmannan, where there will be a station, by the village of Kennet, and close to the Forth Paper Mills at Kilhagie. It then continues southwards, passing near the ruins of Tulliallan Castle, and ends at the foreshore at Kincardine, where it was proposed to have a goods and passenger station, and also a pier. Messrs. J. Young and Sons, Edinburgh, are the contractors, and the total cost is expected to be about £60,000. The North British Railway Company are also renewing the railway viaduct over the Bilston Burn, near Dryden House, on the Loanhead branch. The five central piers are to be removed, and a single central steel span of 330ft., with side spans of 50ft. each, is to be substituted. Considerable progress has been already made in putting down the new foundations, and the staging to carry the steel work. The cost is likely to be between £15,000 and £16,000. Messrs. P. and W. M'Lellan (Limited), of Glasgow, are the contractors, and they have contracted with Messrs. J. W. and G. Stratton, Edinburgh, for the mason work of the new piers for £4,800. It is expected that the cost of contract No. 1 of the Waverley Station extension scheme, for the doubling of the line from Corstorphine to the Haymarket in Edinburgh will be about £20,000.

PORT OF NESS.—Plans have been prepared at the office of Messrs. D. and T. Stevenson, Edinburgh, for extensive alterations at the harbour of Port of Ness, Lewis. The existing basis was built six or seven years ago by the Fishery Board, at a cost of £6,000. The basin, built of concrete, at an angle in the coast, proved a great shelter; but, unfortunately, the entrance got silted up with sand a couple of years ago, so that boats could enter only at the top of the tide. The proposed alterations are being carried out on the lines of the suggestions of the West Highland Commissioners. It is proposed to close the existing entrance to the basin, which is a natural opening between two reefs standing out a short distance from the shore. The new entrance will be formed 200ft. to the east of the present entrance, and the reefs will be utilised in the formation of a breakwater, which will protect the narrow channel leading into the basin. The new entrance will have 3ft. of water at low tide. The most important part of the scheme, however, is the construction of a new breakwater of concrete, which will jut out in a southerly direction, immediately to the east of the new entrance, and will form a quay, to which steamers can be brought. It will run out upwards of 250ft. from land. It will be 35ft. wide at the base, and have a 20ft. roadway at the top. A parapet 10ft. thick and 8ft. high will run along the outer edge. Outside 30-ton concrete blocks will be piled along its length to protect it from the action of the waves, and inside it will be finished with a quay face. At its outer end there will be at low tide a depth of 15ft. of water. The improvements will include the cleaning out of the harbour basin and the making of a roadway from the village, which is just above the basin, to the new pier and breakwater. Under the West Highland scheme, £15,000 have been voted for the new works, and a further expenditure of £1,200 is in contemplation for minor alterations, to be carried out independently of the Commissioners' scheme.

Mr. Mann, late R.E., of New Brompton, has been appointed surveyor to the Hoo district highway board.

An architect and surveyor named Henry Metcalf, of Pendleton, died at the Horseshoe Hotel, Broad-street, Pendleton, under somewhat extraordinary circumstances. Mr. Metcalf, who was 58 years of age, visited the hotel on Saturday night, and went upstairs to the lavatory, which is connected with a slipper-bath. Some time afterwards he was found lying in the bath, fully dressed, and calling for help. Hot water was running into the bath, into which he seems to have fallen. Medical aid was summoned, but death ensued from the effects of the scalds and shock. At the inquest held on Tuesday a verdict of accidental death was returned.

Building Intelligence

BIRMINGHAM.—The alterations and decorat to the Town Hall, carried out at a cost of £10, £7,000 of which has been expended on struct improvements, are now on the eve of complet Messrs. Cossins and Peacock, of Birmingh were the architects, and the decorations have b carried out subject to their modification fro scheme submitted in competition by Mr. J. Taylor, of Five Ways, Birmingham. The tr ment is Roman, in harmony with the style of building. The prevailing hues in the u portion of the hall are maize yellow, with l and panels of terracotta, a considerable surfac cream or vellum, with the occasional relief tained from turquoise blue, and a very la employment of gold, both in lines and upon decorative mouldings. The walls beneath galleries are of Pompeian red, and the i columns of olive green. The base line of gallery front is of cream tint with a line of t quoise, and the vertical stiles cream, with terracotta panel. Between these the open ir work is of gold, which is shown against turqu wood panels in lieu of the red cloth forme used. The structural alterations include, at southern end, a new entrance hall from the stre measuring 15ft. across and 12ft. deep, with in offices on either side, a new staircase to the clos rooms in present basement, and others to gallery, a crush-room being provided in mezzanine space over the hall. At the opposi or northern, end, new stone staircases fr entrance lobby to orchestra, stone passage behi the organ, and two independent stone stairca from the peristyle to the roof. Messrs. Ha Son, and Peard supplied the pierced iron gratin which are of a partly decorative character. T contract for the general structural work w taken by Messrs. W. and J. Webb, of B mingham.

CANTON, CARDIFF.—Memorial stones of We leyan Sunday-schools were laid in Conway-roa Canton, on Wednesday week. The ne premises give accommodation in the main buil ing, on the ground floor, and in the galleries, t about 700 children, and when the class-roo are thrown open, for 900 juveniles. The buil ings are from designs by Messrs. Habershon a Fawckner, and are being erected by Mr. W. Griffiths, contractor, of Windsor-road, Cardi They are situate on the eastern side of Conwa road, immediately facing the chapel and schoo room. The front block, besides vestibul entrance-hall, and corridor, contains on t ground floor infant class-rooms on either han each 24ft. by 20ft., and seating about 120 infa scholars, with two class-rooms for adul accommodating respectively 120 and 80 adul At the rear of this block, and approached by t central corridor, is the large assembly hall, 58 by 35ft., surrounded by a gallery. On ea side of the hall, both on the ground floor a from the gallery, open a series of class-rooms, in all, 18 of which accommodate classes of each, the other three being somewhat larg The assembly-hall has a total height of 34f and is lighted from a clerestory roof, as well by a Geometrical window over the end pla form. The principal timbers of the roof a exposed to view, and the whole of the intern woodwork is stained and varnished. Clear gla form the partitions dividing the class-roo from the assembly-hall. The contract pri is £2,550.

EDINBURGH.—During the summer vacatio alterations have been made on a number colleges and schools in the city. The most e tensive work has been done in the way of i provement by the Merchant Company. George-square Ladies' College alone a sum about £10,000 has been expended. A new wi has been added to that institution, and a fi hall, measuring 70ft. by 60ft., has been adde The hall has an open-timbered roof and an e balcony; the hall can be utilised as a gymnasiu The additional wing referred to consists of fo floors, containing nine large classrooms. T alterations and additions, which have been progress for a year, have been finished in ti for the reopening of the College this month. additional story has been placed on Jam Gillespie's School. This will afford four ext classrooms, and a large lavatory, and the ceilin of some of the old classrooms have been raise The tower has also been raised and its appe

...e greatly improved, a Scottish character ...ing been given to it. The school will be re-...ened on Monday next. The cost will be from ...4 000 to £4,000. The architects for the ...rchant Company are Messrs. Macgibbon and ...ss, 65, Frederick-street. At the City Board ...hools minor internal alterations and improve-...nts have been carried out. A new school is ...ng provided for South Morningside, from ...ns by Mr. Robert Wilson, Queen-street, ...inburgh, to accommodate rather over 600 ...ldren. The total cost of the building, which ...l be of Hailes rubble with redstone dressings, ...luding janitor's house, fittings, &c., will not ...eed £9,000.

LLANSHAMLET.—On Thursday in last week the ...w church of St. John's, Birchgrove, Llans-...mlet, was opened. The building comprises a ...ve, tower, and vestry, with room for extension ...stward at some future time. There is not any ...parate chancel at present, but at the east end ...ere is a space railed off as a substitute, laid with ...caustic tiles and fitted with a Communion ...ble. The total length of the church is ...ft. 6in. in the clear. The nave is 34ft. 5in. in ...ngth, and the aisle is 7ft. wide. The width of ...e building throughout is 18ft. 11in. The tower ...10ft. square on the inside. The vestry room, ...ar the east, is 9ft. 4in. by 8ft. 4in. The height ...the building is 15ft. to the top of the wall-...ate on the inside, and to the top of the ridge ...ft. 6in. The building is built of native grey ...ne, with freestone dressings. The plans were ...epared by Mr. J. Birch Paddon, M.Inst.C.E., ...The Drymma, Llanshamlet.

CHIPS.

John Davison, builder, Oxton, who was a mem-...r of the Birkenhead town council, was brought ...in custody on Tuesday before the Registrar of ...e Birkenhead Bankruptcy Court, and underwent ...s first public examination in bankruptcy. He was ...verely cross-examined as to the £490 and cheques ...took with him in his recent flight to Boulogne, ...s excuse being that he was in a "dazed" con-...tion.

Two new schools, which have been erected by the ...anley school board, were opened on Tuesday. ...he Cauldon road schools will accommodate 150 ...rls and 180 infants, and have cost £4,327. The ...rove schools, Northwood, has accommodation for ...0 girls and 172 infants, and cost £4,072.

The Cambridge Music Hall, Commercial-street, ..., is being thoroughly redecorated by Messrs. ...ampbell, Smith, and Co., of Newman-street, W. ...he same firm have also been intrusted with the re-...ecoration of the grand saloon at the Hotel ...étropole, S.W.

A new Workmen's Canteen has been erected at ...M. Dockyard, Portsmouth, and special attention ...as been paid to the ventilation, which is carried ...ut on the Boyle system, the latest improved form ...f the self-acting air-pump ventilator being adopted ...r the extraction of the vitiated air.

The district surveyor's office for Camberwell is ...moved from 33, Talfourd-road, to 244, Camber-...ell-road, S.E. Mr. Ellis Marsland, M.S.A., is the ...istrict surveyor.

On Saturday a steam bakery and abbatoir, ...rected by the Eccles Co-operative Society at a cost ...f £10,000, and situate on a plot of land fronting ...t. Andrew's Church, were opened to the inspection ...f members of the society. Messrs. Jonathan ...errard and Sons, Swinton, were the contractors ...r the main buildings, and the works have been ...arried out from plans prepared by Mr. F. Smith, ...rown-street, Manchester.

It is proposed to erect a new Roman Catholic ...hurch (St. John's the Evangelist) in the Avenue ...t Kidsgrove, Leek. The designs for the new ...uilding—by Messrs. W. Sugden and Son, archi-...ects, Leek—have been approved by the Bishop.

A Primitive Methodist chapel and schools are ...bout to be built at Ashington, near Blyth, from ...lans by Messrs. Davidson and Bendle, of New-...astle-on-Tyne.

A new infants' school at Upper Wortley, Leeds, ...uilt from designs by Mr. Landless, architect to ...he Leeds School Board, has recently been opened. ...t accommodates 305 scholars, and consists of hall, ...2ft. by 36ft., four classrooms, all fitted with ...alleries and dual desks, babies' room, and cookery ...oom. The adjoining schools for elder children are ...lso being enlarged from Mr. Landless's designs.

The parish church of Great Burstead, near Bil-...ricay, Essex, is about to be restored from plans ...repared by Mr. W. J. Wood. The works will ...nclude the reseating of the nave, new choir stalls, ...nd a heating apparatus.

TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, 332, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

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RECEIVED.—J. P. and Co.—C. of O.—B. H.—T. C. and Co. —A. A.—C. H. M.—J. R.—T. S.—B. S. B.—H. and F. —T. B. and Co.—T. C.—G. H.—J. C. C.

Correspondence.

THE VISIT OF THE SOCIETY OF ARCHITECTS TO BELGIUM.

To the Editor of the BUILDING NEWS.

SIR,—The success of the visit of the Society of Architects to Belgium has been so marked that it is proposed to make it one of a series to various parts of the Continent.

It is difficult to understand why such specially favourable opportunities of studying architecture have hitherto been neglected by societies of practising architects. It is only for such specially organised expeditions that many facilities can be obtained for the inspection and sketching of very many architectural works, as well as of productions of the allied arts and sciences, besides which, men in practice are naturally more discriminating than younger students as to what examples will be most valuable to them, and more able to assimilate the useful matter they collect.

The treasuries of domestic and civil architecture, both Gothic and Renaissance, in Belgium are by no means exhausted, in spite of the fact that one can trace the inspiration of nearly all our best modern buildings (of these classes) to this source, and the careful and copious notes and sketches made by the various members of the society during the past fortnight cannot but have not only a powerful educational effect upon these gentlemen personally, but must also contribute to improve English architecture, especially in the provinces, which is so largely represented in the Society's ranks.

Shall we be considered too sanguine if we entertain a hope, moreover, that our production in England of a vital and vigorous revival of picturesque and refined architecture may before long react upon modern Continental work, which, alas! with the exception of a few notable examples, is still a lifeless art, owing to their too great devotion to the spirit of Classicism?—I am, &c., W. H. SETH-SMITH.

46, Lincoln's Inn-fields, London, W.C.,
Sept. 2.

Intercommunication.

QUESTIONS.

[10615.]—**Hot Water Engineering.**—I shall be glad if the author of "Hot Water Engineering" papers would state what he considers to be the maximum length that might be given to the primary flow and return between boiler and cylinder. I wish to place a cylinder on first floor between a linen closet and bath-room, so as to give warmth to both. This is, however, not immediately over the kitchen, but on the side furthest removed from range, and would require about 41ft. lineal of double piping. If not too far off, would not these pipes be improved by being covered with felt or silicate cotton to keep in the heat. Is it absolutely necessary for the cylinder to be nearer the boiler?—INQUIRER.

[10616.]—**Hot Water Engineering.**—Would the writer of the above interesting articles state in a future number, for the benefit of an engineering student, the maximum length of pipe that should be used with effect for the secondary return from A to B, as shown in Fig. 24, p. 137. Suppose the pipes and cylinders were felted, the pipes fixed only on inside walls, and worked as he suggests with a boot boiler by a 14in. fire, and the cylinder to have a capacity of 60 gallons.—H. STREAM.

[10617.]—**Easels or Drawing Boards.**—Some time ago I noticed in your columns in an account, given in a summarised form, of the mode of working a large architectural business in an American city—Chicago, I think—a statement that the draughtsmen worked at easels instead of on tables. Can any of your readers in Chicago give any description of the easel used, and also whether this arrangement has any conspicuous advantage over the ordinary flat-topped drawing table. Any information on the subject will much oblige.—K. J. H.

[10618.]—**Greasy Marble.**—How can I remove grease from a mantelpiece of white marble without injury to the surface?—QUBRIST.

[10619.]—**Ancient Lights.**—I understand that the law with regard to ancient lights in England is that if a man for 20 years obtains light, for a part of his house, from an open space on his neighbour's property, that neighbour cannot afterwards block it up nor diminish it in any way. Would any reader inform me what difference there is in the law of Scotland on this point, as I am told that unless there is an understanding between parties, an adjoining proprietor can block up light, no matter how long it has been enjoyed.—SCOT.

[10620.]—**Painting Portland Cement.**—Is it advisable to paint Portand cement plain face (finished to a smooth face with steel trowel) as soon as executed, say in about a fortnight? I have heard that it should be previously washed with diluted sulphuric acid. Should be glad to hear from anyone who has tried this, or any other expedient, and found it effective.—THEORY.

REPLIES.

[10608.]—**Heating Houses.**—I always maintain we are terribly at sea on this subject, and that when the external temperature is down to freezing-point an Englishman's fireside is about the miserablest place on earth. I have heard talk of "snug chimney corners" and "cosy firesides," but I never in practice have seen them. The open grates we are so proud of are a luxury, so far as the eye is concerned; but the draughts they create as their food are boneshakers to those who sit in the lines of the doors or windows. The slow-combustion grate is a vast advance upon our old national grate, as it radiates its heat below the line of the cold air current rushing to the chimney, and is thus a factor in raising the temperature of the apartment. The first thing in heating a house should be to keep out the external frosty air. This can never be done by sliding sash windows, nor single casements. The English sliding window is a summer luxury, but a winter curse; for the fire-grate will, in large measure, be fed from this source. Again, the single casement, with an external temperature of, say, 32°, and an internal temperature some twenty degrees higher, draws the heated air to its glass, cools it, and drops it on the floor in a continuous shower. These details are prominent as our coal wasters. For a warm house you require casement windows double rebated, the inner rebate being used for a double or winter casement, the joints of which should be pasted over to render them air-tight, ventilation, when required, being provided through the walls independent of the windows. By this means the draughts from the windows, and the cooling power of one film of glass are destroyed by the neutral temperature existing between the two lines of glass. It is a point that the open fire must be retained. This being the case, a slow-combustion grate should be used, taking care to supply it with plenty of air, for so long as a short supply exists, the grate will smoke. The air should be drawn from internal sources, and should be passed through a warm chamber, on coils of pipes heated at low pressure. This may be arranged by the common grates having boiler backs and connecting pipes. The passages adjoining the living-rooms should be arranged in sections, and not be open to the staircases or roofs of the houses, by which means they could be economised as heating chambers. Apartments thus freely supplied with warm air would prove all that comfort requires. If "Heat" values his health he must not introduce small high-pressure pipes into his private house, for the air roasted by this means is deadly. The air warmed by large low-pressure pipes is not, as a substitute for the summer sun, all that can be desired, but in comparison it is infinitely the best. This warming of air should be conducted by exposing it to a large surface at a low or moderate heat, and not to a small surface at an intense heat. Iron is not a good face to expose air to; a vitreous glaze, if it can be arranged, is

far better. The high-pressure system may be used in large buildings, as its pernicious action on the air is not easily detected; but to introduce it into a dwelling-house is, in my opinion, an act of insanity. It is not a question, as "Heat" puts it, of what becomes of the expansion when the water is turned into steam; but what becomes of the inmates who have to live in the atmosphere?—WM. STEVENSON, Hull.

[10609.]—**Warehouse Floor.**—I would suggest to "Support" the following plan for trussing an old country warehouse floor to prevent sagging. A greater depth of timber is required, so as to minimise the elasticity or sagging of the present beams. The bearing of the beams, and the first yard or so of the timbers from the wall-lines, are not in question; it is, say, the two-thirds of the length of the beams forming the central portion which alone requires consideration. If height in the lower room is not a point, I advise that another beam, falling short of the walls say 3ft. at either end, be bolted underneath each beam, the bolts to be placed about 9in. from either end of the added beams. This, although unquestionably effective, would not look very constructional. If this was a consideration, the continuity of the added beams might be carried to the walls by struts footing in the walls, their feet being, say, a yard below the beams, and their heads abutting upon the added beams, say, a yard from the wall-lines. I take it, from the beams being about 3ft. 6in. centres, that it is a plank floor on beams. If the floor is carried on joists resting upon the beams, various other modes might be suggested. —WM. STEVENSON, Hull.

CHIPS.

The building of a new Roman Catholic Church has just been commenced at Lincoln. The contractors are Messrs. H. S. and W. Close, of that city, whose tender was accepted at £7,310.

A new gymnasium is being built at Warrington, and it will be opened a month hence. The dimensions of the principal room are 84ft. by 43ft., and the height from the floor to the ceiling is 25ft. The cost of the building, including the site, will be about £1,600. Mr. J. E. Wright, of Warrington, is the architect, and Mr. William Taylor, of Haydock-street, in the same town, the builder.

The Royal Gallery at Dresden has acquired a picture by Sir Joshua Reynolds representing a youth dressed in Dunstable hunting costume. It is supposed to have been produced by Sir Joshua about 1760.

It has been decided to hold at the New Gallery, from next December to April, 1892, an exhibition of pictures and objects of interest connected with the 50 years of Her Majesty's reign dating from the Accession to the Jubilee. This Exhibition will form a sequel to the series of historical exhibitions which have been held at the New Gallery during the three previous winters.

An examination of candidates for the certificate of the Sanitary Institute was held at the Shire Hall, Stafford, on Friday and Saturday. Forty-seven candidates presented themselves, including 27 Staffordshire inspectors, who had attended the recent course of sanitary instruction lectures, the others coming from different parts of England and Scotland.

The new workhouse hospitals, Reading, which are nearing completion, are being warmed and ventilated throughout by Mr. E. H. Shorland, of Manchester. In the large wards are fixed Shorland's double-fronted patent Manchester stoves, with descending smoke flues, and in the smaller wards Shorland's patent Manchester grates.

The will and codicil of Mr. William Verity, formerly of 137, Regent-street, gas and electric lighting engineer, and late of Moorcroft, Weybridge, who died on June 12, were proved on the 15th inst., the value of the personal estate amounting to £7,347.

Good progress is being made with the construction of the outer pier at Scarborough, from plans by Mr. Philip J. Messent, engineer to the Harbour Commissioners. Of the apron, 420ft. out of the proposed 650ft. has been finished, and the whole work will be completed this season.

The death occurred on Sunday of Mr. Sheridan Daynes, of North Walsham, who, for a period of 34 years, had been connected with the well-known building firm of Messrs. Cornish and Gaymer, in which position he had gained the esteem and respect of all the employés. Mr. Daynes, who was 50 years of age, had also prominently identified himself with many useful institutions in the town.

A new sort of electric-bell has been devised by an American inventor, consisting of a vibrating plate of metal, like the reed of a parlour-organ, which is set in motion by the electro-magnet, and emits a clear and continuous musical sound, less irritating to hear than the startling rattle of the ordinary electric-bell.

At St. Bartholomew's Hospital on Wednesday week, Mr. Langham inquired into the cause of death of John Graver, aged 58, a carpenter and joiner, who died suddenly on the previous Saturday at the new buildings now in course of erection at the General Post Office. A verdict of death from natural causes was returned.

LEGAL INTELLIGENCE.

AN IMPORTANT DECISION ON NEW ROADS.—At the North London Police Court on Thursday, the 27th ult., Messrs. Isaac Edmondson and Son, builders, were summoned before Mr. Haden Corser by the London County Council for unlawfully laying out a road, passage, or way, known as Newington-turning, as a public carriage-way in such a manner that such road, passage, or way would not directly communicate at both ends with a public carriage-way, contrary to the 53rd and 54th Victoria, cap. 243. Mr. Buckmaster, who appeared for the London County Council, stated that the defendants had laid out one portion of Newington-turning as a carriage-way to the full width of 40ft., but they had failed to make the whole of the footway a carriage-way. Mr. C. Glenn was counsel for the defendants, and stated that when the building estate was finished Newington-turning would be intersected by another carriage-way or road, which had already been staked out, and he produced a plan showing this arrangement. He also referred to an estate at Herne Hill where the road was not 40ft. in width. Mr. John Hebb, assistant architect to the County Council, Mr. Henry Lovegrove, the district surveyor, with the notices, &c., the surveyors to the estate, Mr. C. Herbert Shoppee and Messrs. Buckland and Garrard, also Mr. C. J. Bentley, were in attendance, but only Mr. Hebb gave evidence. Mr. Corser dismissed the summons, with £5 5s. costs, and notice of appeal was given.

WATER SUPPLY AND SANITARY MATTERS.

COWLYD WATER SCHEME.—A meeting of the joint authority of the Conway town council, the Conway rural sanitary authority, and the Colwyn Bay local board was held on Friday, in connection with the Cowlyd water scheme, which was formally adopted. Mr. Farrington, C.E., borough surveyor of Conway, who is in charge of the scheme, was formally appointed engineer. The estimated cost of the scheme is £16,000, the engineer estimating that the works would be carried out in twelve months. The clerk was instructed to advertise for tenders, and to make immediate application for the loan sanctioned by the Local Government Board. In compliance with the recommendation of Mr. J. Ritchie, C.E., it was decided to use 12in. instead of 9in. pipes, the chairman stating that this would raise the cost of the lake from £1,000 to £1,700.

EDINBURGH.—The full text of a report by Messrs. Gale, Hill, and Mansergh, and Messrs. Leslie and Reid, civil engineers, on the proposed additional supply of water for Edinburgh and district, has been published. The three suggested sources of supply, from the Manor, the Tweed, and St. Mary's loch, are dealt with, and the adoption of the Manor scheme is "strongly recommended." The Manor (a tributary of the Tweed), it is pointed out, is the nearest of the three sources to Edinburgh, and the water obtained is the best in point of quality. For fifteen million gallons per day the total outlay is set down at £842,440, or by an alternative scheme at £873,005.

HUDDERSFIELD WATERWORKS.—The first sod of the new Butterley Reservoir, one of a series constructed in the Wessenden Valley, above Marsden, was cut by the vice-chairman of the Waterworks Committee of the Huddersfield Corporation. The new reservoir will cover 41½ acres of land, it will contain when full 400,000,000 gallons of water, and will make the eighth reservoir belonging to the Huddersfield Corporation. The Corporation of Huddersfield have bought the rights of the Wessenden Water Commissioners, and have acquired the whole of the water area in the Wessenden Valley. The construction of the Butterley Reservoir was planned by the late Mr. John Stanway, who had, to a large extent, the superintendence of the construction of the Blackmoorfoot reservoir, which will hold 700,000,000 gallons, and is the largest of the series. Mr. Stanway died suddenly in May last, a few days after he had paid a visit to the site of the ninth reservoir at Bank Bottom, down the valley. The work will be carried out on the lines laid down by Mr. Stanway, and Mr. J. E. Hughes, of London, has been appointed to superintend the work.

LANARKSHIRE.—The District Committee of the County Council of the Middle Ward of Lanark are at present considering an important scheme for the supply of water to the numerous populous villages and agricultural properties in the area under its care. The district, measuring twenty miles in length by twelve across, has an estimated population, exclusive of the burghs, of 112,642, and there are now special supply districts in existence which represent 740,000 gallons per day. The new scheme will provide an extra 2,000,000 gallons, to be distributed, according to the population, on a basis of 25 gallons per head per day. The scheme is the first of the kind taken up by a County Council in Scotland, whose hands in this case have been strengthened by an Act passed last y amending the Water Clauses Act, under wh County Councils are authorised to levy a gene public water rate, as water trustees are authori to do in towns, not exceeding 3d. in the £1. T cost of the new scheme is estimated at £220,0 The Committee have consulted Messrs. Leslie a Reid, C.E., Edinburgh. The reservoir propo under their scheme will be on the Glengavel wat a tributary of the Avon which flows into the Cly at Hamilton; and there will be required som thing like 100 miles of pipes. As the reserv will be 850ft. above sea-level, most of the distr will be supplied by gravitation. The drainage a to be annexed at first is 3,700 acres, and there additional areas that may be diverted into t reservoir of 1,417 acres and 755 acres respectivel

WATERWORKS FOR TULLAMORE, IRELAND.— meeting of the committee appointed by the sanita authority to select plans sent in for competition above project was held on Thursday, 20th Augu There were four competitors. After an exhausti examination of the different competitors on t merits and demerits of their schemes, the committ were unanimous in selecting the scheme forward by Mr. R. P. Gill, Assoc.Inst.C.E.I., of Armag co. Tipperary. The scheme is entirely a gravitati one, taken from the Clodiagh river, about six mi from the town. The reservoir, filters, and pu water basin will be of concrete. Six-inch diamet cast-iron turned and bored jointed pipes will fo the main, with 4in. and 3in. pipes through t town. Population to be supplied is about 5,0 daily supply will exceed 100,000 gallons, estimat cost about £6,000. At a meeting of the sanita authority on Tuesday, 25th August, the action the committee in selecting Mr. Gill's plan w ratified.

The foundation-stone for a new Primiti Methodist Chapel at Wrekenton, near Gateshea on-Tyne, was laid on Saturday last by Mrs. J. Robson, of Gateshead. The architect for the ne building is Mr. James W. Frazer, A.R.I.B.A 12, Grey-street, Newcastle-on-Tyne, and the co tractors Messrs. Woodall and Wilson, Gateshead.

The foundation-stone of a new Roman Cathol church, to be erected in Llandudno, will be bless and laid by Dr. Knight, Bishop of the dioces on Thursday next, the 10th inst. Mr. Edmu Kirby, F.R.I.B.A., of Liverpool, has given t designs for the building, which will be in t Decorated Gothic style, and Mr. John D. William of Knighton, Radnorshire, is the builder.

The memorial to the late Canon Hannah, Edinburgh, will take the form of a Celtic cross white Sicilian marble, which will be erected ov the grave of the deceased in the Grange Cemeter Edinburgh. Designed and sculptured by Mr. Gun of Messrs. Gunn and Co., 130, George-stree Edinburgh, the cross will stand about 13ft. hig and will be ornamented after a typical Celt pattern.

The next Convention of the American Institute Architects is to be held in Boston, Mas., some tim in October, the precise date not being yet fixe An exhibition of architectural drawings by arch tects now residing in the States will be held in co nection with the Convention, and a joint committ of the Boston Society of Architects and the Bost Architectural Club has been appointed to make t arrangements.

Colonel J. Ord Hasted, R.E., Inspector of t Local Government Board, held an inquiry Darlington on Friday, the Town Council havin made application to borrow £4,000 for the extensio of the Town Hall and offices, and also £1,700 f erecting a new bridge to the park, street improv ments, and additions to the baths. With regard t the town hall extensions, the town clerk explaine that the present accommodation was inadequat It was proposed to extend the buildings from th town hall eastward 61ft., and provide a council chamber, a mayor's chamber, and committee-room The borough surveyor explained the plans. M G. G. Hoskins, architect, and Mr. George Marshal builder, opposed the scheme, the former suggestin till new municipal buildings were erected, that small extension of the accountant's clerks' office b made.

At the last meeting of the Preston town counci Mr. Yates Booth drew attention to the long-delaye opening of the Harris Free Library and Museum erected at a cost of over £100,000 two years ago b the Harris Trustees, but still unfurnished. H understood there were disputes between the trustee and two contractors, who claimed together £9,99 and that some of the architect's claims were in dis pute. Alderman Hibbert, chairman of the com mittee, and also the architect, said if the trustee had done what he advised three years ago th building would have been opened this year. If the would now act on Mr. Justice Chitty's order, to th same effect, the building could be furnished fo opening in twelve months.

Our Office Table.

The inaugural address to the Royal Institute of British Architects will be delivered by Mr. MacVicar Anderson, President, on Monday, November 2nd. On the 25th January, 1892, Mr. Anderson will publicly present the prizes and medals, and will give an address to the students. The four business meetings of the Institute are fixed for the 16th November, 1891, the 18th January, 7th March, and 13th June, 1892. The next preliminary examination is arranged for the 24th and 25th November, 1891, and the next intermediate examination for the 24th, 25th, and 26th November, 1891. The spring examinations are: Preliminary, 15th and 16th March, 1892; intermediate, 15th, 16th, and 17th March, 1892; final, during the week commencing 28th March, 1892.

The new education scheme of the Architectural Association is gradually assuming a definite and concrete form. Temporary premises for the studios and classrooms have been taken at 56, Great Marlborough-street, W. The lecturers will include Mr. F. R. Farrow, who will deal with "The History of Architecture"; Mr. Ravenscraft Elsey Smith, who is to lecture on "The Orders and Classic Ornament," a subject in which he is well qualified by his explorations in Athens; and Professor Robert Kerr will treat on "The Arts of Construction." The studio will be under the superintendence of two Academy medallists, Mr. R. W. Schultz taking the junior and Mr. J. A. Slater the senior students. The chief instructors in the more scientific subjects will be Dr. Holmes and Messrs. Moody and Hancock.

This year the complete list of purchases which have been made for the nation under the terms of the Chantrey bequest is as follows: "St. Elizabeth of Hungary's Great Act of Renunciation," by P. H. Calderon, R.A., purchased for £1,200; "Pandora" (marble statue), Harry Bates, £1,000; "Lions" (drawing), Harry Dixon, £100; and "The Winter Sun in the Wild Woodland" (oil), J. W. North, £315. The first three works were exhibited at the Royal Academy, and the last at the New Gallery. Since the year 1877, when the Chantrey fund first became available, the collection consists of 78 works. Of this total, 18 only are by members and associates of the Academy, the remaining 40 being by outsiders. Three artists have twice been favoured by the trustees. Sir F. Leighton, one picture, "The Bath of Psyche," and one statue, the "Athlete struggling with a Python"; Prof. Herkomer and Mr. Joseph Clark with two pictures each. Of the 40 outsiders who have obtained the honour of selection, ten have since been elected into the academic body.

At the annual meeting of the Society of Art Masters just held in the Lecture Theatre, South Kensington Museum, information was sought as to the extent to which schools of art had participated in the grants made by local authorities under the Technical Instruction Acts, 1889 and 1891, and under the Local Taxation (Customs and Excise) Act, 1890, and it was generally felt that in the distribution of funds under these Acts they had not, except in isolated cases, received the consideration to which they are justly entitled, seeing that their teaching in draughtsmanship, modelling, and design is of the highest national importance, in all their stages, to the numerous manufactures of the country in which a knowledge of the principles and practice of applied art is a first essential. The society, therefore, unanimously adopted the subjoined resolution, in the hope that masters of schools of art, and the members of their committees, will not fail to place it in the hands of gentlemen interested in art education, especially those who may be members of Municipal Corporations, County Councils, and other local authorities, in support of a formal application for assistance from the sources referred to:—

"The members of the Society of Art Masters, including about 100 masters of schools of art in all parts of the United Kingdom, desire to represent to gentlemen interested in art teaching who are members of County Councils, Town Councils, and other local authorities, that the teaching carried on in these schools is of the highest educational importance, and especially in relation to art as applied to manufactures; and that it is therefore, in the truest sense, technical instruction of the highest national value. They therefore desire to urge upon all local authorities the strong claim which these schools have to a considerable share in the grants made under the Technical Instruction Acts, 1889 and 1891, and under the Local Taxation (Customs and Excise) Act, 1890."

A limited liability company of unusual character is announced in the financial journals of this week under the title of "Browne and Parry, Limited." It is registered from a City address, with a capital of £500 in £1 shares. The object is to carry on the business of architects and surveyors, and civil engineers, auctioneers, &c., in all branches. The firm is registered without articles of association. Such commercial undertakings for carrying on professional work are not infrequently floated in the United States, but this is the first of the kind we have seen here.

The death occurred last week of Mr. Leonard C. Wyon, modeller and engraver to the Royal Mint, and one of a family that has long been associated with that Department. Mr. Leonard Wyon was the son of the late Mr. William Wyon, R.A., chief engraver to the Mint, and was born at the Mint in 1826. He was silver medallist of his year at the Royal Academy. He designed the present British bronze coinage, the coinage of Australia (1857), New Grenada (1858), Canada, Cyprus, United States of Colombia, Straits Settlement, Jamaica, Uruguay, Hong Kong, Japan, Peru, Newfoundland, and the present coinage of British India. His miscellaneous medals were exceedingly numerous, and included a medal of the Emperor Nicholas of Russia, another to commemorate the exchange of visits, in 1855, between the Queen and the Emperor of the French, and a portrait of William Wordsworth (1848), from a drawing from the life.

The twenty-first annual exhibition of modern pictures held under the auspices of the Walker Art Gallery, which was opened on Monday, is the best collection brought together in Liverpool for a dozen years past. There is a great diminution, compared with recent years, in the number of works displayed, 1,281 in all. No. 8 room has been hung by J. M. Whistler, and on a greyish wall a few pictures, including one by that artist himself—his "Arrangement in Black—a Fur Jacket"—are hung with wide intervals. The most attractive works include "Christ among the Doctors," by Holman Hunt, and four pictures from the recent Academy—Luke Fildes' "Doctor," Calderon's "St. Elizabeth of Hungary," Leighton's "Perseus and Andromeda," and G. F. Watts's "Lady Catherine Thynne." There are three portraits of Mr. Gladstone, including the one by Robert Holt to be presented to the Liverpool Institution. The water-colours number 500 and the pieces of sculpture only 50.

Several interesting additions have just been made to the collection of casts of sculpture and architectural ornament at the Edinburgh Museum of Science and Art. Of these the earliest is the font and its tabernacle in the church of San Giovanni at Siena, a work completed in 1430 by Jacopo della Quercia. On each of the six sides of the font is a sculptured panel in gilt bronze, representing a scene in the life of John the Baptist. The other two new casts are the monument to Carlo Marsuppina, by Desiderio da Settignano, in the church of Santa Croce at Florence, and the tomb of Archbishop Uriel von Gemmingen in the Cathedral of Mayence (*c.* 1514). A number of copies of small German works of the 16th century have also been added to the museum, including two life-sized figures, placed at opposite corners of a house in Nuremberg, by Adam Kraft, and representing the Annunciation; cast of a "Pieta," by Veit Stoss; statue of a man in armour, after Peter Vischer; and figures of two "Dancing Fools," after Erasmus Grasser. From South Kensington a number of architectural casts have been received by the Edinburgh Museum, the most important being details of Saracenic work from Cairo.

The Council of the Society of Arts are prepared to offer, under the terms of the Stock Trust, a gold medal, or a prize of £20, for competition amongst the students of the Schools of Art of the United Kingdom, at the Annual National Competition held in 1892. The prize is offered for the best original design for architectural decoration, by means of painting, stucco, carving, mosaic, or any other method, such as that for the side of a room or hall, a ceiling, or the apse or side of the chancel of a church. The design must be on imperial sheets, and must be accompanied by drawings of details on separate imperial sheets. Mere patterns, or pieces of painting and modelling, without the mouldings or borders necessary to make up a complete decorative scheme, will not be taken into consideration. The work is to be that of the previous school year. The designs are to be submitted in the usual manner to the examiners, at the Annual Competition (April, 1892) of the Department of Science and Art. Competing designs must be marked, "In competition for the Stock Prize," in addition to being labelled and staged according to the regulations of the Department of Science and Art.

The *American Architect* says:—"Mr. Thomas, of New York, the architect of the new Armoury at the corner of Fourth Avenue and Thirty-fourth-street, has placed himself in a position where his experiences will be edifying to the rest of the profession, if not very agreeable to himself, by guaranteeing, under bonds, that the cost of the building will not exceed a certain amount. After the plans had been approved by the Building Bureau, a discussion took place in the Board of Commissioners as to the method of advertising for bids for carrying them into execution. Mr. Thomas advised inviting separate bids for the different portions of the work, on the ground that the bids obtained in this way would be likely to amount, in the aggregate, to less than a bid made by a single contractor for the whole work. Some of the board thought a single contractor could be better held to a fixed time of completion than a number of independent contractors. Mr. Thomas thought that, as he guaranteed the cost, under heavy bonds, his opinion in regard to the mode of making contracts ought to have some weight, but his wishes were coolly disregarded, and the order was passed to advertise for bids in gross." English architects will be interested in hearing the outcome of Mr. Thomas's guarantee, and especially to learn whether he has had to pay a forfeit.

La Nature has remarked on the employment of electricity for working pile-drivers. An electric-light plant lying idle during the day was employed for the purpose. An Edison motor was mounted in the lower part of the pile-driver frame, and transmitted power to a chain drum fitted with fast and loose pulleys. By means of a suitable cut-out the current could be diverted from the motor to a resistance box when power for hoisting the pile driver was not needed. A current of 64 ampères and 100 volts was employed, and the generator was 330ft. distant. The conductor was a copper wire 0·2in. in diameter.

The ancient pavement in the Papal Lodge of the Vatican, which was destroyed about 1859, and of which now only fragments and designs are left, is the subject of a paper by Signor Tesorono. These pavements in majolica were laid, by order of Pope Leo X., by the two brothers Robbia, both Dominican friars, after designs by Raffaele. Signor Tesorone has compared this work with other ornamentation in the Vatican. He has tried to find fragments of the precious work in other parts of the Vatican or elsewhere; but while it is dubious whether he has been successful in that attempt, he has discovered examples of ancient work belonging to the same period as the Logge of Raffaele, including some done by the brothers Robbia.

The United States Census Bulletin, No. 100, gives an interesting record of the streets, lighting, water-supply, sewers, police, and fire departments of the 50 principal cities in the United States. Of the 50 cities 22 have a population of over 100,000 each, and a total of 8,737,648, or 13·95 per cent. of the total population of the United States. The average density of the population in these 22 cities is 10,190·03 to the square mile, or 15·92 to the acre. There are, however, enormous differences in the ratios of population to area included in the city limits of these various cities. All the streets of Boston, Worcester, and Holyoke are paved, while in Denver none are paved, and in Minneapolis but 3·1, in St. Paul 4·1, and in Dallas 4·7 per cent. are paved. The average yearly cost of construction and repairs per head of population in cities having over 100,000 inhabitants is 1dol. 54 cents, and in 27 cities of less than 100,000 inhabitants it is 2dol. 4 cents. The amount per head of population annually ex-

pended in street cleaning varies from 5 cents in Buffalo and 8 cents in Chicago, to 71 cents in New York and 62 cents in Cincinnati. There is, however, no definite relation between the cost per head of street cleaning as shown by these figures and the actual condition of the streets as to cleanliness.

Another U.S. Census Bulletin, No. 96, prepared by Mr. Charles Kirchoff, of the Division of Mines and Minerals, deals with copper production. This report shows the United States to be now the largest producer of copper in the world, the product for the year 1889, the last one tabulated, being 226,055,962lb., or 109,017 tons. About 8,700 men are employed in copper mining. During the last ten years, Arizona and Montana have made wonderful progress in the mining and production of copper, and Montana now leads all other States in this production, its product, nearly 43,850 tons, exceeding that of Michigan (which has heretofore been the leading producer) by one-eighth.

The Institute of Architects of New South Wales have been actively engaged in formulating various forms and codes for professional practice. Some time ago the Institute of the colony adopted a code of professional charges and practice based on that of the Institute of British Architects, and are now engaged in preparing conditions of contract. We hope the committee will first obtain evidence of existing practice and clauses, and consult contractors as well as architects. The Royal Victorian Institute, judging from its annual report, has been doing useful work in issuing diplomas to members, in establishing a scheme of examinations, and in discussing questions like the regulation of competitions, conditions of contract, architectural pupilage, sub-letting, appointment of quantity surveyors, and last, though not least, a draft bill has been prepared and discussed for the registration of architects. Our younger and more active societies in Australia, as elsewhere, are beginning to see that registration is the only practical measure to place architecture in a recognised position.

The *Chamber of Commerce Journal*, in an article on the resources of the Congo Free State, remarks that the Upper Congo abounds in forests, and many of the woods are hard, and would prove of value in Europe. Mahogany and ebony, camwood, and a timber strong almost as teak, known locally as ironwood, are found in the interior; but the question of transport stands in the way of their being utilised by commerce. Probably the Kwilu river, in French Congo, some 100 miles north of the Congo mouth, offers a better field for the timber merchant, since for the 80 or 90 odd miles of its navigable course from the sea it flows through the great Mayumba forest, which will eventually yield timber as fine as any now in the market coming from Africa. The timber of the Gold Coast, which is no finer than that of the South-West Coast, has already begun to attract attention, and companies are being formed to work the forest regions bordering on the courses of the rivers draining that portion of the Gulf of Guinea.

The Moorhouse Sawmills in Maxwell-road, Pollokshields, Glasgow, owned by Messrs. J. Watt Torrance and Co., were destroyed by fire on Friday.

The Italian Government denies the truth of the report that the excavations at Pompeii have been suspended for want of cash. On the contrary, the excavations, not only at Pompeii, but also at Vetulonia, Rome, and in other place, are still going on, the allotted funds being sufficient for the purpose.

A fountain, erected by public subscription in the park at Bloxwich, near Wolverhampton, was inaugurated on Monday. It was supplied by Messrs. G. Smith and Co., of Glasgow.

The Manchester city council approved, on Wednesday, a resolution passed by the gas committee declaring that it is necessary to raise the sum of £150,000 by exercising the borrowing powers conferred by the Electric Lighting Acts, and authorising an application to the Local Government Board for permission to borrow that sum.

Mr. Johnston has resigned office as Surveyor to the Commissioners of Rathmines, near Dublin, after more than forty years' service. At Wednesday's meeting of the commissioners, a resolution was unanimously passed conveying the thanks of the members for the efficient manner in which he had discharged his duties, and wishing him all happiness in his well-earned retirement.

Trade News.

WAGES MOVEMENTS.

Arbroath.—The operative slaters have received intimation that on the 22nd inst. they will receive an advance of ½d. on hour on their present rate of wages, extending to March, 1892. The wages will thus be raised from 6½d. to 7d.

The Strike of London Carpenters.—There is but little change to note in the position of affairs in the building trades of the Metropolis. Both sides express themselves confident of ultimate victory, the employers stating that the busiest season is going by, and predicting that the coffers of the men will be exhausted by the long-continued demand upon them; while, on the other hand, the men point to the fact that each week fresh firms concede the terms of the memorial, and allege that the "struck" firms who are keeping their shops open are paying 10d. and 10½d. an hour, besides railway fares and bonuses, and, in certain cases, providing lodgings and food. The carpenters have been greatly hampered during the past fortnight by the serious illness of Mr. G. F. Watts, the energetic secretary of the United Trades Committee, who is confined to bed through hæmorrhage of the lungs, aggravated by his exertions at demonstrations, in visiting pickets, and at office duties. During the week funds have come in more freely from provincial centres, and a grant of £21 has been made by the Portmanteau Makers' Society. A fresh levy of 6d. per man a week has been made at Birmingham, and will be continued while the dispute lasts. The strike pay is still being distributed at the rate of 9s. per man per week. Fifty-seven firms have now conceded the demands made, the latest additions being Crace, of Wigmore-street, and Morant, of Bond-street. Several demonstrations were held in London on Sunday in aid of the funds, of which the more important were those at Peckham Rye; at North Camberwell, Mr. Ben Ellis in the chair; and St. Pancras arches, where three mass meetings were held. At each of these meetings, those present pledged themselves to support the movement to the utmost. A meeting of representatives from nearly all the unions engaged in the building trades was held on Wednesday night at the Rose and Crown, Old Bailey, to consider the best means for rendering assistance to the carpenters and joiners. The trades represented were masons, bricklayers, plasterers, painters, builders' labourers, plumbers, glaziers, wood-cutting machinists, lath-renders, navvies, and bricklayers. Mr. J. G. Bowern presided, and laid before the meeting the present position and prospects of the strike. The following resolution was carried unanimously, having been moved by Mr. Harvey (plasterer), and seconded by Mr. Richards (operative bricklayer):—"That this meeting of representatives of all branches of the London building trades pledges itself to support the carpenters and joiners in their struggle to obtain an eight-hour day by using every effort of the organisations we represent to obtain their financial and moral support."

Lincoln.—The carpenters and joiners of this city have gained practically all that they struck work for. The employers have not only advanced the wages ½d. per hour, making the rate of pay 7½d., but they have agreed to the code of working rules which the men drew up subject to some modifications. The bricklayers have been equally successful, their demand for a rise in wages of ½d. per hour, viz., from 6¾d. to 7¼d., being granted. It has been mutually agreed that any further disputes that may arise shall be settled by a Board of Conciliation, consisting of six master builders and a like number of operatives.

Newport, Mon.—The bricklayers of Newport were recently on strike for six weeks, demanding an increase of wages from 7d. to 8d. per hour. The masters offered 7½d., leaving the additional ½d. to arbitration, offering to pay it from the resumption of work if the award was against them. The arbitration took place on Wednesday in last week, but the result has not yet been published.

North Wales Quarries.—Lord Penrhyn, having refused to concede the demands of his quarrymen for an increase of 10 per cent. in wages, an agitation arose among the younger men in favour of a strike, although this course was protested against by the Quarrymen's Union. On Tuesday, however, a ballot was taken, with the result that the majority pronounced against a strike.

A new board school at Colinton, near Edinburgh, a spacious building designed by Mr. R. Wilson, architect, of Edinburgh, was opened on Tuesday.

The foundation stone of the new river harbour at Thurso was laid on Thursday in last week by the Duke of Portland. Mr. Barron is the engineer, and Mr. John Mackay the contractor. The outlay will be about £17,000.

CHIPS.

Mr. G. St. P. Connolly, Colonial architect Queensland, has severed his connection with t Government of the Colony. It has now be decided to rearrange the Department of Pul Works, and all matters connected with divisio boards will be transferred to the Colonial Sec tary's Department.

A group of public buildings, consisting of magistrates' court-house, police-station, local bos offices, banking premises, and suites of offices, about to be erected in Station-road, Colwyn Ba The architects are Messrs. Booth, Chadwick, a Porter, of Manchester and Colwyn Bay.

The decoration of the church at Sneyd, Staff has been supplemented by a mural painting ov the chancel arch, consisting of a representation the Resurrection. The painting has been design and executed by Mr. Frederick Rhead, of Stoke-o Trent.

The late Signor Benedetto Romagnani, of Pistoi Florence, has left to the Corporation of the City London "the centre of a chandelier from the saloo of Vessalo, composed of six parts, and decorated the middle with the Triumph of Neptune and oth ornaments."

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*** Correspondents would in all cases oblige by givin the addresses of the parties tendering—at any rate, of th accepted tender: it adds to the value of the information.

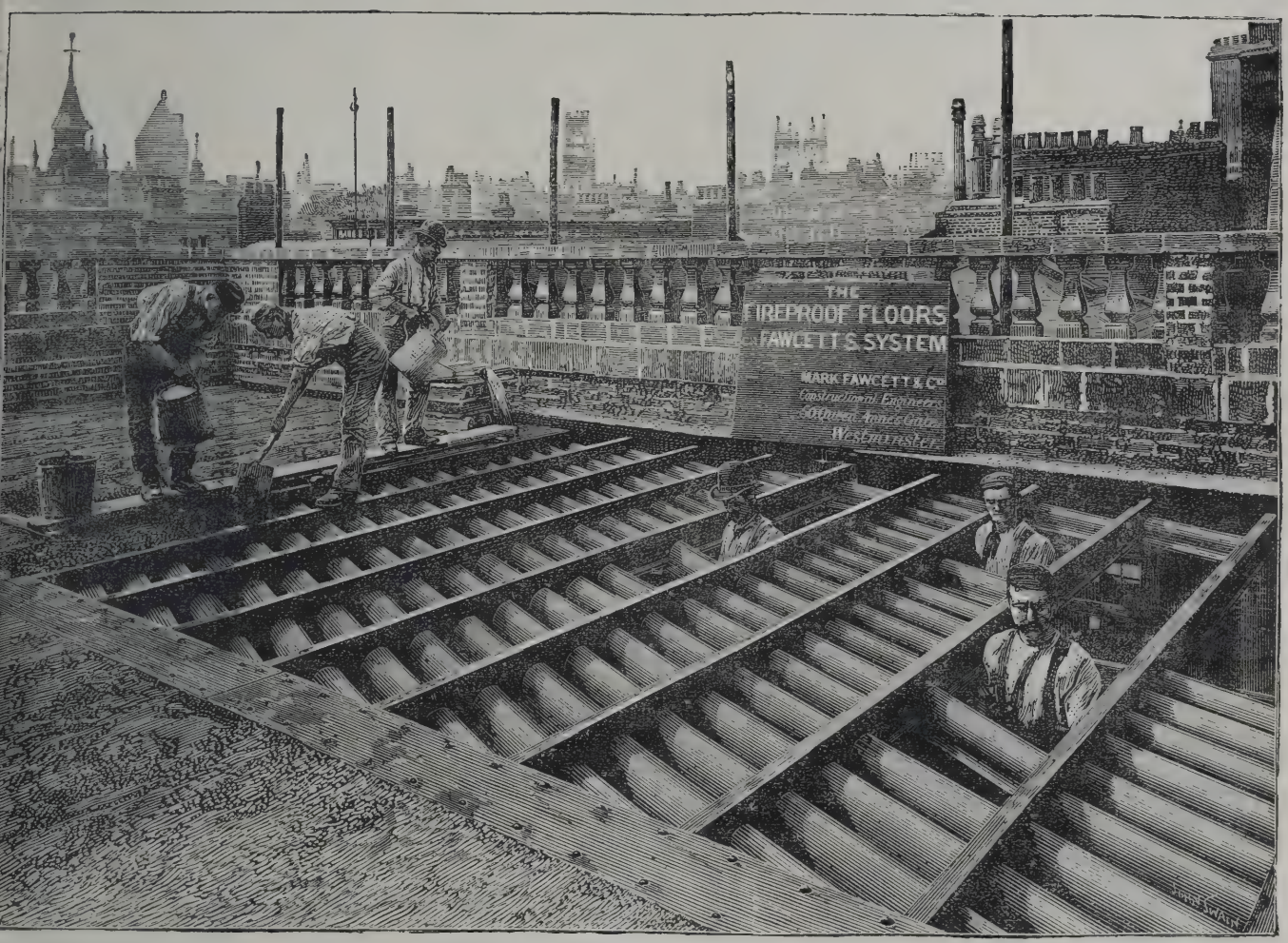
Bideford, Devon. — For new Wesleyan chapel Messrs. W. G. Habershon and Fawckner, London Newport, and Cardiff, architects:—
Cock and Lammerton (accepted)... £4,663 0 0

Birmingham.—For alterations to "The Rock House," Bromsgrove, for Mr. E. H. Humphreys. Mr. T. W. P Newton, Birmingham, architect:—
Lacey, F. (accepted) £260 0 0

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BIRMINGHAM.—For the erection of a factory for the British United Clock Company, Limited. Mr. T. W. F. Newton, 121, Colmore-row, Birmingham, architect and surveyor:—

Lee	£3,930	0	0
Wilson and Son	3,545	0	0
Barnsley, J.	3,536	0	0
Whitehouse	3,498	0	0
Barker and Sons	3,480	0	0
Taylor	3,436	0	0
Bennett	3,350	0	0
Sapcote and Son	3,320	0	0
Moffatt	3,278	0	0
Gowing and Ingram	3,188	0	0
Surman and Son	3,177	0	0
Rowbotham, J.	3,069	0	0
Biggs (accepted)	3,049	0	0
Johnson (withdrawn)	3,020	0	0

BIRMINGHAM.—For the erection of a house in Park Hill, Moseley, for Mrs. Fuller. Mr. T. W. F. Newton, 121, Colmore-row, Birmingham, architect:—

Horton...	£1,390	0	0
Bamfield	1,229	0	0
Trentham	1,198	5	1
Johnson (accepted)	1,086	0	0

BIRMINGHAM.—For altering business premises, for Mr. J. Jones in Spiceal-street, Birmingham. Mr. T. W. F. Newton, 121, Colmore-row, architect and surveyor:—

Johnson (accepted)	£96	0	0

BIRMINGHAM.—For the erection of two pairs of villas for Messrs. W. and W. E. Birch, Gillott-road, Edgbaston, Mr. T. W. F. Newton, 121, Colmore-row, Birmingham, architect:—

Whitehouse	£1,398	0	0
Johnson (accepted)	1,350	0	0
Lond (withdrawn)	1,300	0	0

BIRMINGHAM.—For erecting a new house in Park-hill, Moseley, for Mr. J. Bowker. Mr. T. W. F. Newton, 121, Colmore-row, Birmingham, architect:—

Mills and Son...	£1,247	0	0
Bowen, J.	1,079	0	0
Johnson	865	0	0
Lond (accepted)	840	0	0

BIRMINGHAM.—For altering and enlarging Woodville, Selly Oak, Birmingham, the residence of Mr. J. Downing. Mr. T. W. F. Newton, 121, Colmore-row, architect:—

George	£265	0	0
Johnson (accepted)	245	0	0

BIRMINGHAM.—For altering, enlarging, and rebuilding a factory in Highgate-street, Birmingham, for Mr. H. W. Sambidge. Mr. T. W. F. Newton, Birmingham, architect:—

Johnson	£1,544	0	0
Rowbotham	1,540	0	0
Mills and Son*	1,527	0	0

* Accepted, subject to reduction.

BIRMINGHAM.—For making a new road at Moseley, known as New Shensham-road, for the Edgbaston-road Land Syndicate. Mr. T. W. F. Newton, 121, Colmore-row, Birmingham, surveyor:—

Currall and Lewis (accepted) ...	£1,300	0	0

BIRMINGHAM.—For the erection of workmen's cottages on the estate of the Hockley Hall and Whateley Collieries and Brick Works, Limited, near Tamworth. Mr. T. W. F. Newton, 121, Colmore-row, Birmingham, architect and surveyor:—

Clarson and Son	£2,445	0	0
Williams	1,575	0	0
Lowe and Son (accepted)	1,500	0	0

(Bricks and tiles were supplied by proprietors.)

BOSTON.—For removing the large crane from the south to the north side of the dock, for the Dock Commissioners:—

Lucas, J....	£280	0	0
Sherwin, S.	249	0	0
Hinds, H. and W. (accepted) ...	230	0	0

CARDIFF.—For residence, the Crescent, for Mr. J. Howell. Messrs. W. G. Habershon and Fawckner, London, Newport, and Cardiff, architects:—

Jones Bros.	£4,320	0	0
Davies, D. J....	4,100	0	0
Dunn, C. E.	4,029	0	0
Shepherd and Son (Limited) ...	3,989	0	0
Shepton and Sons (accepted) ...	3,920	10	0

All of Cardiff.

CARDIFF.—For Wesleyan Methodist Sunday-schools, Conway-road, Canton, Cardiff. Messrs. W. G. Habershon and Fawckner, London, Newport, and Cardiff, architects:—

Davies, D. J.	£3,300	0	0
Griffiths, G.	3,099	0	0
Thomas and James	2,942	0	0
Davies, H.	2,915	0	0
Gough, T.	2,775	0	0
Turner and Sons	2,688	0	0
Griffiths, G. E. (accepted)... ...	2,550	0	0

All of Cardiff.

CARDIFF.—For new mission-hall, Carlisle-street, Splottlands, Cardiff, for the Rev. J. Pugh. Messrs. W. G. Habershon and Fawckner, London, Newport, and Cardiff, architects:—

Griffiths, G.	£2,384	0	0
Davies, H.	2,224	12	3
Turner and Sons	2,068	0	0
Gough, T.	2,011	0	0
Thomas and James (accepted) ...	2,000	0	0

All of Cardiff.

CARDIFF.—For new Welsh Baptist schoolroom, Walker-road. Messrs. W. G. Habershon and Fawckner, London, Newport, and Cardiff, architects:—

Gough, J., Cardiff	£658	0	0
Hopkins, J. Cardiff	645	0	0
William and Thomas, Barry Dock*	640	0	0

*Accepted.

CARDIFF.—For Welsh Methodist schoolroom, Walker road, Spottlands. Messrs. W. G. Habershon and Fawckner, London, Newport, and Cardiff, architects:—

Williams and Thomas, Barry Dock	£615	0	0
Thomas and James, Cardiff	470	0	0

CIRENCESTER.—For rearranging premises in Queen lane, occupied by Mr. John Lock, for the local board:—

Saunders and Sons (accepted) ...	£66	5	0

DARTFORD.—For the erection of a boiler-house at the Gore Farm Hospital, for the Metropolitan Asylum Board. Messrs. A. and C. Harston, 15, Leadenhall street, E.C., architects:—

Butler Bros.	£1,275	0	0
Neil, W.	1,145	10	0
Knight	1,135	0	0
Miskin, C., St. Alban's (accepted)	976	0	0

DEPTFORD.—For the repairs, new roof, &c., to the Bonded Store, Holland's Distillery, Deptford, for Messrs. Holland and Co., Limited. Mr. T. J. Lamber Norgrove Buildings, 59, Bishopsgate-street, E.C, architect:—

King	£748	0	0
Wood	723	0	0
Hearle and Farrow	696	0	0
Holloway	693	0	0
Hewlitt (accepted)	571	0	0

DEVIZES.—For building two additional rooms at the Devizes Cottage Hospital. Mr. J. A. Randell, M.S.A Devizes, architect:—

Stone, T., Devizes	£157	10	0
Ash, H., jun., and Chevers, W. E.	156	0	0
Mullings, R. B.	152	0	0
Brown, G. (accepted)...	146	0	0

DEVONPORT. — For alterations and additions to the premises No. 113, Fore-street, Devonport, for banking purposes, for the Directors of the Capital and Counties Bank, Limited. Mr. H. G. Luff, Devonport, architect:—

Healy	£594	0	0
Greenslade	579	0	0
Littleton	561	0	0
Smith, G., and Son	556	0	0
Jenkins and Son (accepted)	554	0	0

DEVONPORT.—For certain alterations and additions to St. John's National Schools, Davenport, for the Managers Mr. H. G. Luff, Devonport, architect:—

Littleton	£522	0	0
Greenslade	510	0	0
Smith, G., and Son (accepted) ...	508	19	0

DEVONPORT. — For alterations and additions to the "Barnstaple Inn," Princes-street, Devonport, for the Plymouth Breweries Co. Mr. H. G. Luff, Devonport architect:—

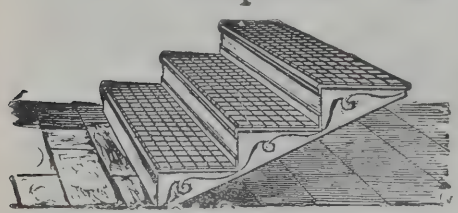
Littleton	£497	0	0
Jenkin and Son...	493	0	0
Healy	462	0	0
Smith, G., and Son	439	15	0
Greenslade (accepted)	433	0	0

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Clayton
Clifton
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Daubhill
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Derby
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Forest Road Level Crossing
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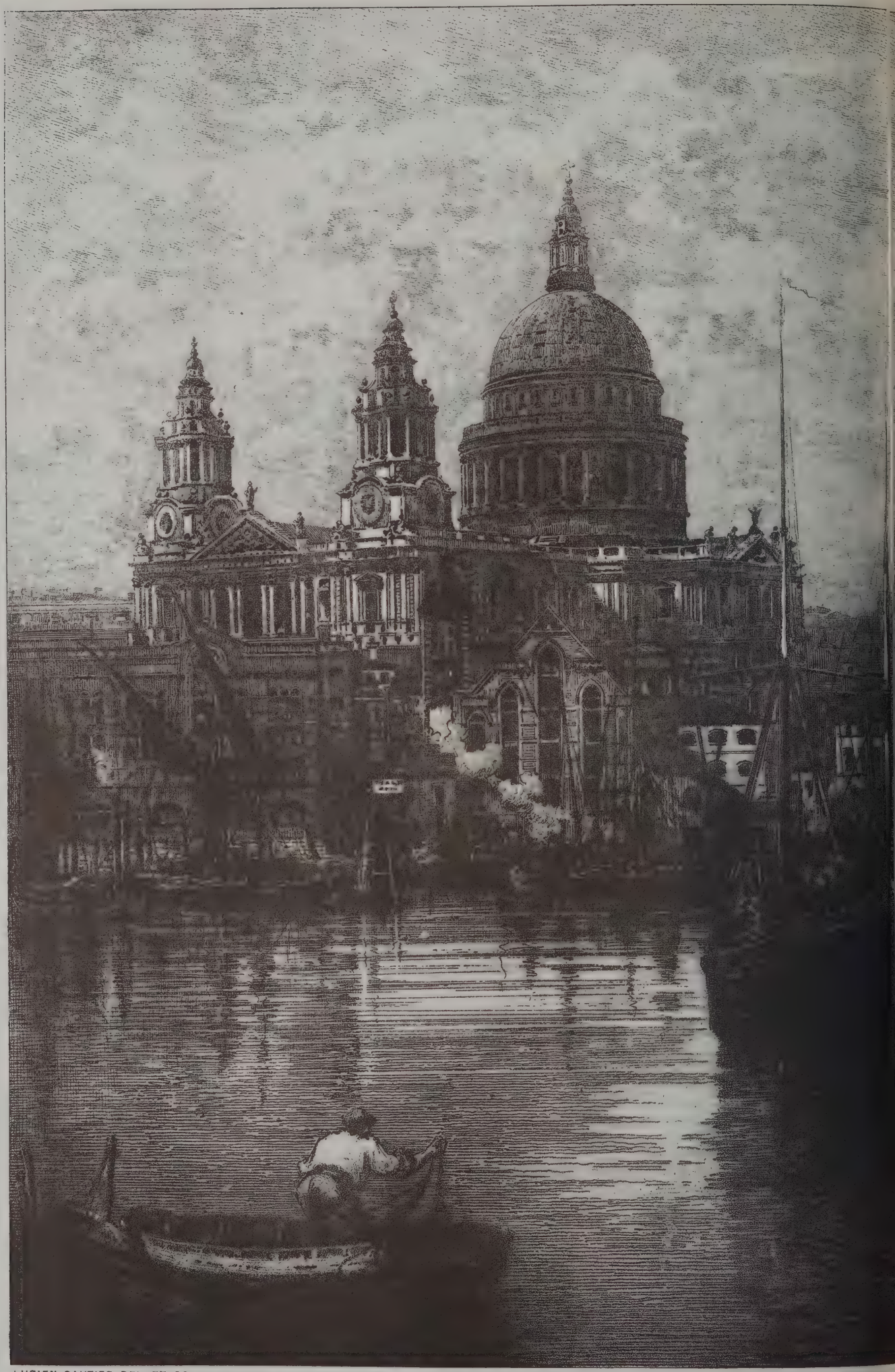
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LUCIEN GAUTIER, DEL. ET SC.

ST PAUL'S CATHEDRAL.

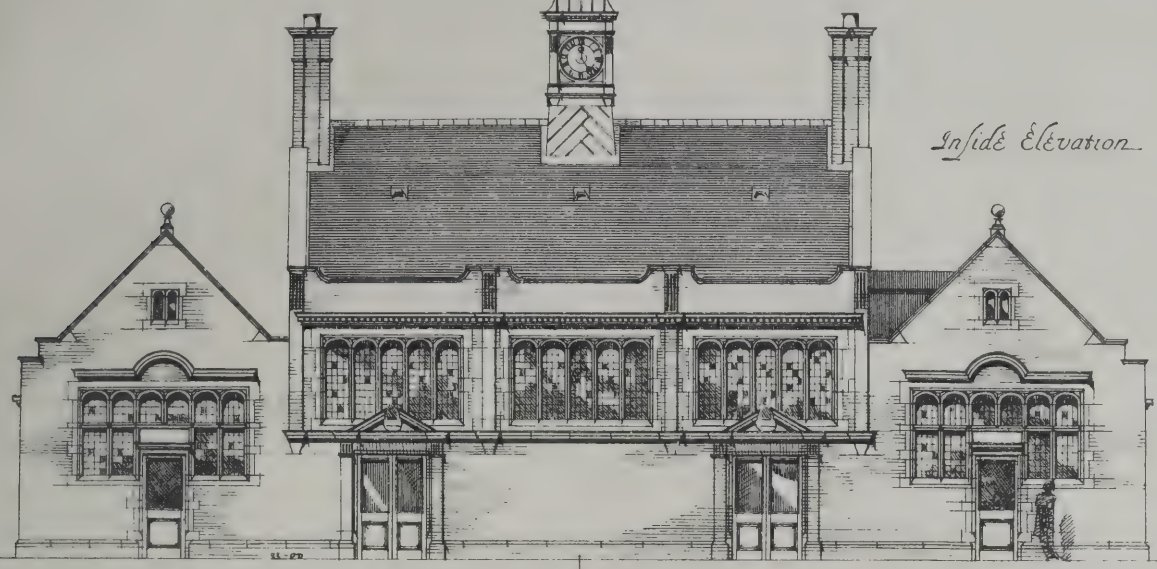


"PHOTO-TINT," by James Akerman, 6, Queen Square, London, W.C.

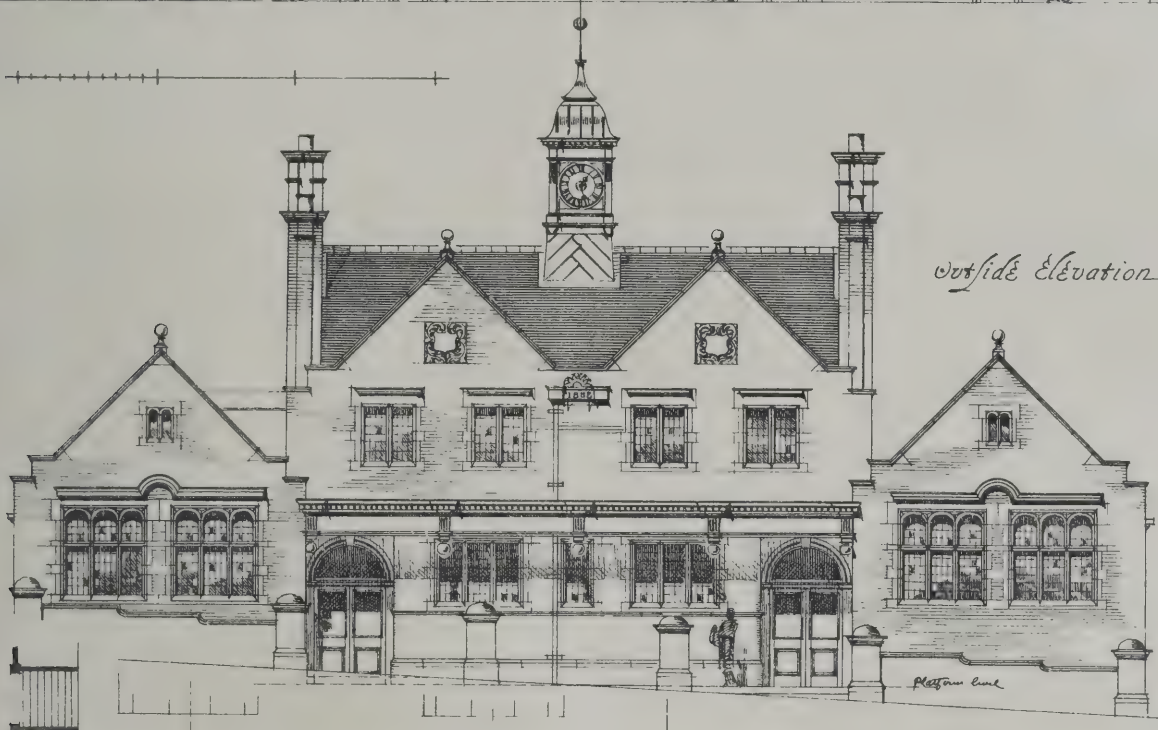
SALISBURY CATHEDRAL.

SEACOMBE HOYLAKE & DEESIDE RAILWAY. NEW BRIGHTON STATION.

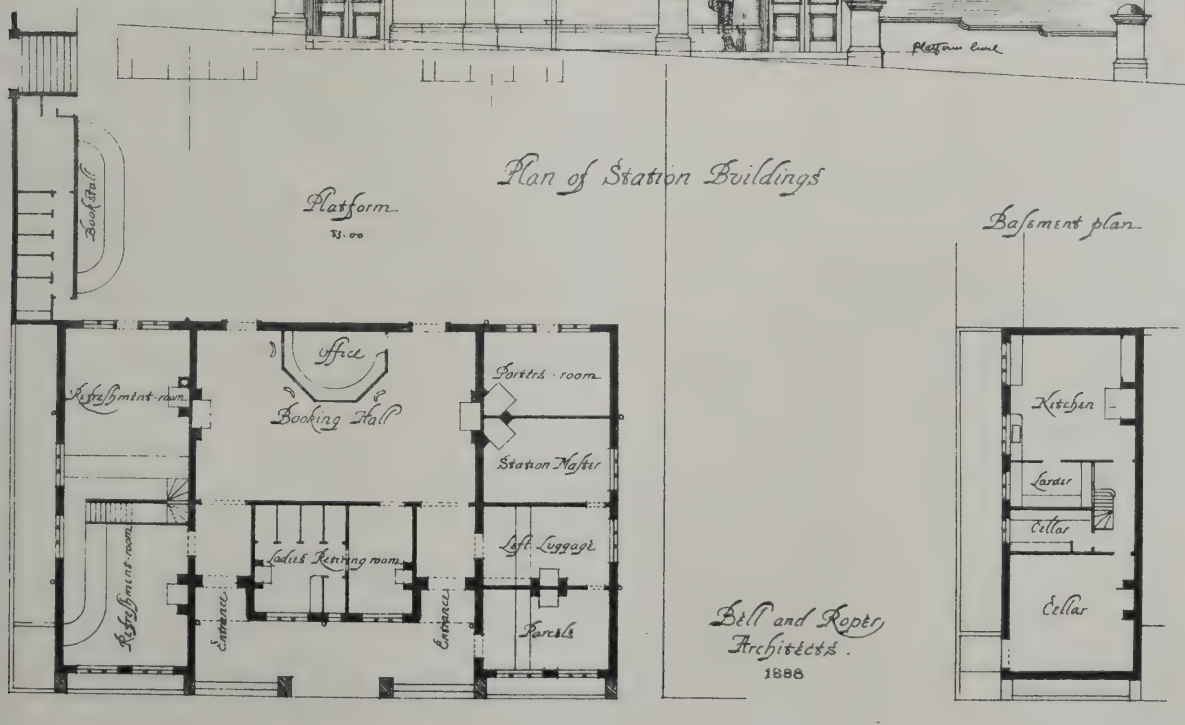
1888.



Inside Elevation



Outside Elevation

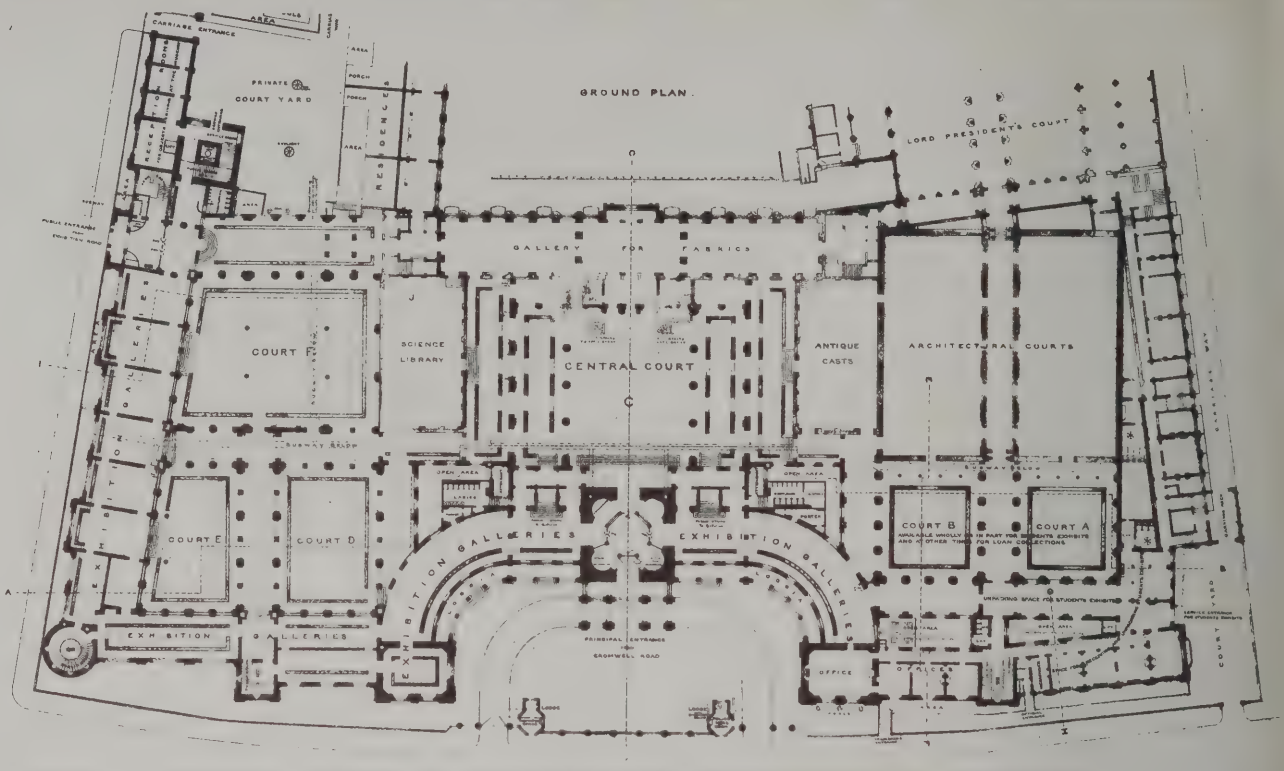


Plan of Station Buildings

Basement plan

Bell and Roper
Architects.
1888

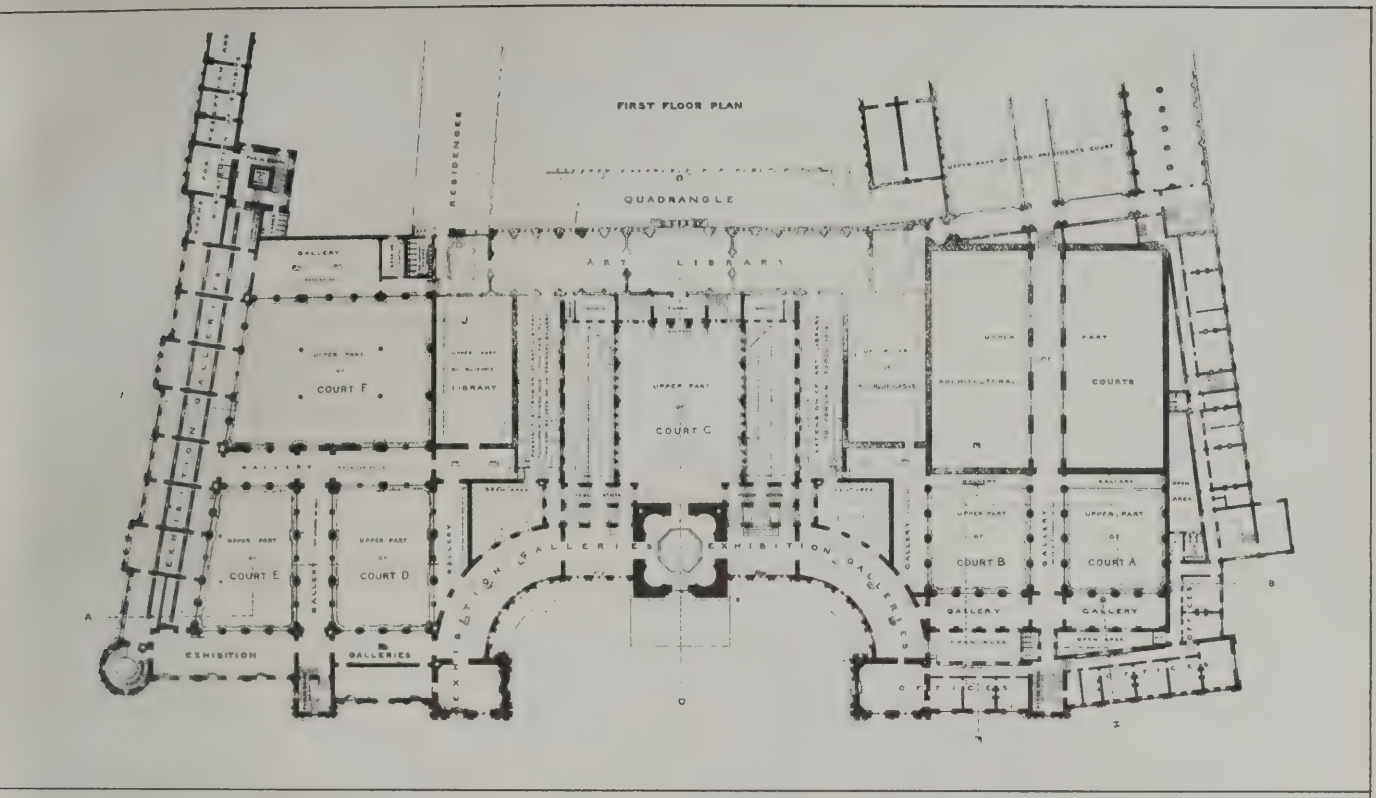
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SOUTH KENSINGTO

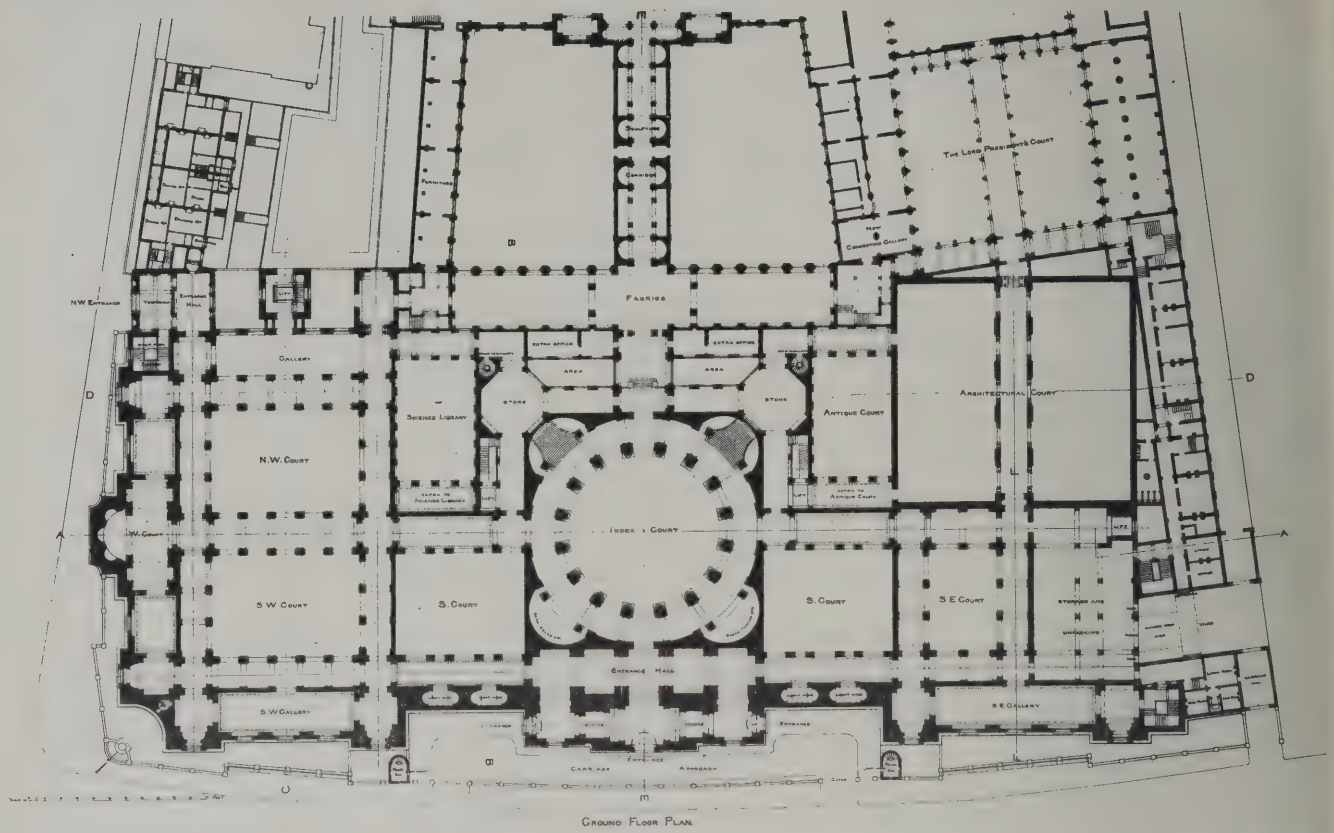
DESIGN BY T.G.JA





EUM COMPETITION,
I.A. ARCHITECT.

"PHOTO-TINT," by James Akerman, 6, Queen Square, London, W.C.

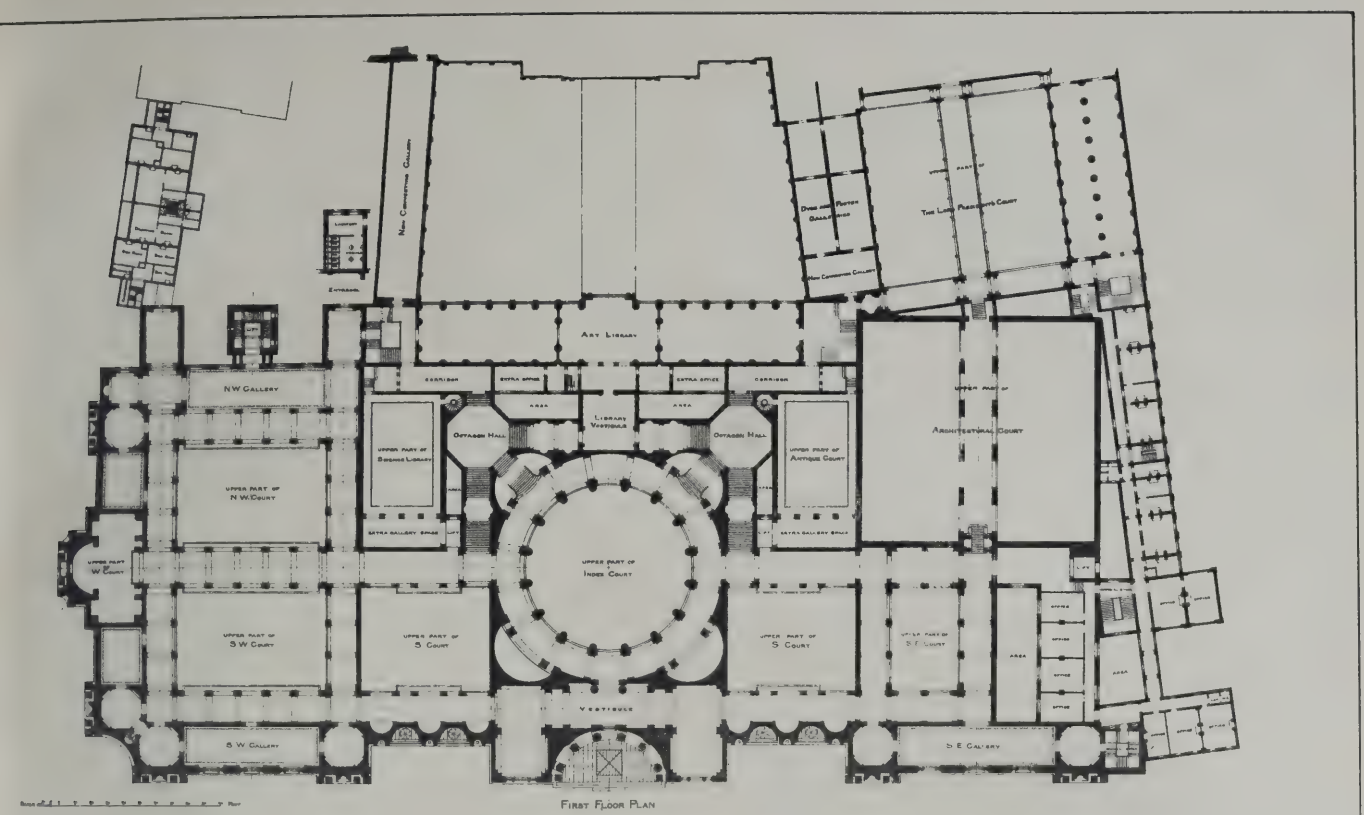


GROUND FLOOR PLAN.

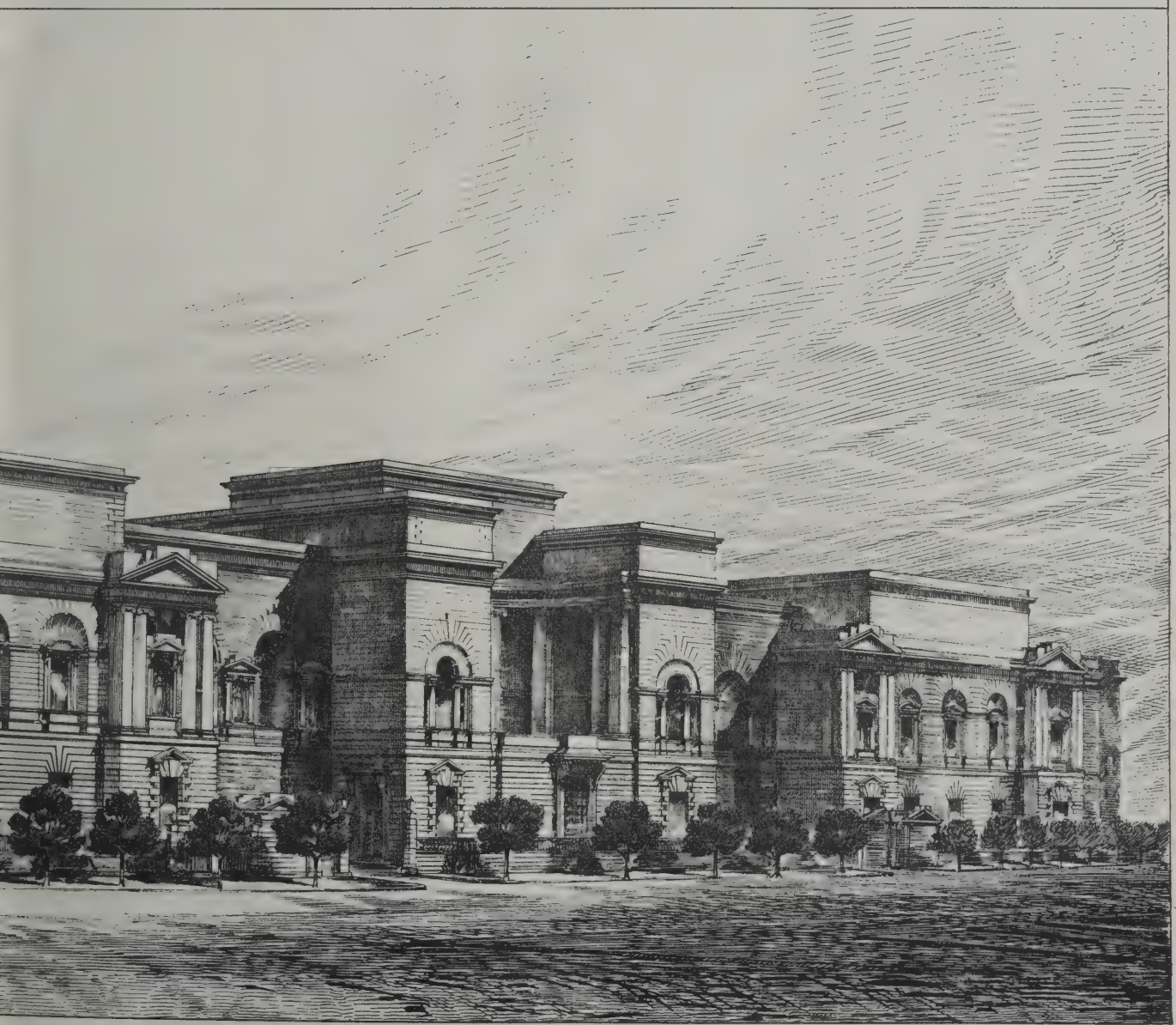


SOUTH KENSINGTO

DESIGN BY M.M



First Floor Plan



UM COMPETITION,

ARCHITECT.

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THE BUILDING NEWS
AND ENGINEERING JOURNAL.
VOL. LXI.—No. 1914.
FRIDAY, SEPTEMBER 11, 1891.

PROFESSIONAL PROBLEMS.

HOW to obtain clients and keep them is one of the first and hardest lessons to be learned by the professional man. He soon finds out that acquirements are for very little without that other gift of turning his knowledge to practical account in the most adroit manner he can, and in applying what he has learned. Not every-one has the genial and persuasive personality which attracts and captivates, and which, in too many cases, succeeds where talent or ability fails to secure attention. A man may have had the advantage of passing his pupilage with an eminent architect, of going creditably through his examinations, and of having good family connections, yet without being able to do so much as one who has begun life as a builder's clerk, and has been grown into business in a rough-and-ready manner, without education or friends. But we find it so in every vocation. Industry and energy are, of course, considerable factors, but not the only ones. Much is due to perception: of seeing rightly the requirements of each case as it arises, of discerning quickly the mode of dealing with certain problems, and of turning to account the knowledge or experience that has been learned. The young architect brought up in the traditions of the drawing office is helpless. He has, with few exceptions, a very imperfect idea of any problem presented to him other than those he has learned from books and from copies of buildings. His mind has never realised the concrete problem, the relation of design to material and labour, how it can be carried out between employer and builder, the legal obligations involved in construction, and the hundred other things which distinguish building from mere draughtsmanship.

How to make oneself master of these practical views of architecture is not easily discerned. The young architect finds the building operative a match for him very often. Many points and "wrinkles" in carpentry or joinery or masonry cannot be learned in the office, or from books. A deviation from the working drawing or specification arouses the architect's disapprobation, but the workman has a very good explanation; the prescribed form, or mode of construction, is not practicable; it cannot be worked as shown, or it is exceedingly wasteful. The joiner has executed it in another way. The reasons assigned are recognised as practical, and the workman's mode is adopted, but still there is something that does not please the architect. If he had only the practical knowledge of the joiner or mason, how much better the result might have been. He feels, at least, he has been beaten on grounds that might have been avoided by a little practical knowledge, and which a month in a joiner's shop would have supplied.

The builder, too, can often present to the mind of the employer those points which have a more direct interest for him. One of these is *cost*. It is a singular thing that architects, as a rule, try to evade this item. But it is just the question which most touches men who have property, and who study the money-markets, and desire to know where the best investments are to be found. To them cost is the chief consideration. To the commercial man it is of the first importance to know how much he can lay out on building a new warehouse or business premises without hampering his resources, and he naturally likes to have a reliable estimate. How few in the profession are able or willing to say how much such an accommodation will cost, what price per cubic foot a warehouse of a certain class should be, the cost per head or per sitting of a school or a church! And yet these data are within reach of any practical mind. The builder knows the figure by experience. The relative cost of buildings in wood, brick, and stone can be found by comparison, and it is a pity architects do not take the trouble to compare results with respect to buildings they have carried out, noting not only the cost per foot cube in varying materials, but the relation of floor space to cost, of quantity of goods stored, the price per head accommodated, or the sitting. The study of estimates is dry and repulsive to many minds; but if they can be analysed a little more, and the amounts of contract divided by the accommodation offered, the number of rooms, the area in feet, and so on, the subject would be rendered an interesting one. For example, an estimate might be considered in relation to the amount of material employed or the trades engaged. Thus, in a particular class of building the brickwork or carpenters' work may represent a certain proportion of the whole cost, and this fact is useful in approximately estimating a similar building. Again, the relative amount of labour to material in each trade is of value to the architect in estimating or in checking tenders. Proportions may be applied in other ways, as in determining the proportion of beds and joints to each cubic foot of stone, which varies for different classes of masonry. Only a practical surveyor or a builder can carry these methods in his head, though there is no reason why they should not be acquired by the architect. An employer may sometimes like to know how much extra it would cost to put a Portland stone ashlar-faced front to a building instead of brick. An experienced surveyor would say the cost would be from 5s. 6d. to 7s. per cubic foot, according to the quantity, including architectural details like pediments, pilasters, and groins. To one unpractised in estimates the careful measurement and quantities of the stone and labour from the drawings would be necessary. We do not recommend "rule of thumb" methods of estimation, for they are often unreliable; but we say that a scientific mode of classifying labour and material and building estimates or tenders might lead to a saving of time, and to the establishment of data of considerable value to the profession.

Contracts are a branch of the architect's business that can be learned only after the term of pupilage. Books and forms of contract are plentiful, but they do not instruct. The architect has very often to prepare his own contracts, or, if not, to frame one for the assistance of the legal adviser, and his only resort is to use one of the forms published, such as that issued by the Institute of British Architects. These forms do not supply the legal or technical qualifications necessary for the profession in protecting clients. When a disagreement occurs about orders for extras, a certificate, or some question as to material or workmanship, the clause is appealed to by both parties to the contract; but the architect finds that there is a little ambiguity, or that the builder has managed to keep within the letter while disobeying the spirit, or it may be there is a loophole of escape. Only those who have had experience in arranging disputes under contracts of this kind are prepared to draw up their provisions to meet any of the many points or questions likely to arise. The question whether the bill of quantities should form part of the contract or not, and another question that has come to the front of late, that of permitting underletting or sub-contracts, are matters which presuppose a general knowledge of business and the relation of labour to wages. These can only be learned in one way, and that is by coming into contact with contractors and surveyors and workmen, and hearing both sides of the question. The profession are a long way from agreeing as to the best mode, though a committee of the Institute some time ago considered that sub-contracts were often advantageous, because, for one reason, they enabled contractors with small capital to obtain efficient skilled hands for special kinds of work which they could not execute themselves, and therefore they could compete on better terms with large contractors who kept skilled hands all the year round. Other weightier reasons may be urged for allowing a contractor to sub let. It enables many skilled hands to obtain a share of the large contracts; it induces a higher class of workmanship, and it encourages individual interest in the work. But the trade unions have arguments to use on the other side against the practice of under-letting, and big contractors who keep a large number of men of various trades naturally object to the system. Both sides require a careful attention on the part of the architect; but it will be often found that circumstances may favour one or the other view, and no hard-and-fast rule can be enforced. Political economy is not one of the favoured studies of the student of architecture, though he is brought so frequently into contact with problems in which labour and wages are concerned that he ought to be prepared to advise. Take, for instance, the present carpenters' and joiners' strike. Few in the profession have probably taken much more than a very transitory interest in this strike, yet the reduction of the hours of labour and the rate for overtime have important bearings on future contracts. In what relation the skilled workman should stand in connection with building is a question that ought to receive immediate attention. By no means can the present relation under contract be deemed satisfactory.

The legal problems which come before the architect are numerous. Everyone engaged in building knows how wide is the range of legal questions. Landlord and tenant is a very important division, and a great many points are continually occurring as to leases and covenants. What is "good tenantable repair"? The architect is expected to advise his client as to these points. A fund of common legal knowledge must be acquired, in addition to decisions of the Judges and the definitions of the Courts. It will not do now to be ignorant of such a judgment as that of Lord Esher in "Proudfoot v. Hart" as to a tenant's contract in keeping premises in "good tenantable repair." The whole subject of dilapidations is a question requiring much study and insight into the two kinds of waste, permissive and voluntary. A great diversity of opinion is to be found as to what is a dilapidation, and how it can be ascertained. A client wants to know what sorts of dilapidations he is liable for; but hardly two surveyors will agree, the fact being that the matter is a subject very much of construction under different holdings. Although lawyers and surveyors have written many useful textbooks on the question, they are of little use in instructing the professional man to determine in certain circumstances for what repairs his client is liable.

A great deal more is to be acquired by making notes as they occur in practice, and in using that common sense and judgment in finding out first what a client's covenants are, what was the real condition of the premises when first taken, and then to apply those principles of judicious criticism which consist in determining how far a tenant is liable for voluntary or permissive waste; firstly, for example, in altering the premises

prejudicially in the eyes of the grantor, and secondly in neglecting or omitting to repair the effects of time and use.

SOUTHAMPTON FREE LIBRARY COMPETITION.

ALTHOUGH Southampton has one fine institution devoted to the pursuit of Classical and Oriental literature, science, and art at the southern end of the town, the Corporation authorities have not overlooked the development of the town northwards. Competition designs for a free library on a site facing the upper Parks were invited some time ago, and no less than 37 sets have been sent in and have been on view. One of the conditions of the competition was that Mr. Wm. Henman, A.R.I.B.A., of Birmingham, was to act as an assessor, and that gentleman has awarded the first place to Mr. A. E. J. Guy, of Southsea, and the second premium to Mr. Sidney R. J. Smith, A.R.I.B.A., of the Adelphi. The very irregular shape of the site at the junction of three roads, and the necessity imposed on the authors of designs to make the frontage of the principal elevation conform to the obtuse angle formed by the main roads, increased greatly the difficulty of designing a building having any pretensions to architectural dignity. The irregularity of the site has also resulted in a considerable diversity of plan, and has called for a great deal of ingenuity. Many of the competitors have conceived germs of much promise, but have been less happy in developing them. While the junction between the London-road and Cumberland-place has been considered a desirable position for the main entrance by a large number of the authors, very few have thought of an axial arrangement for the entrance and principal department — the lending library—and, as the assessor observes, "it has occurred to only one, the author of the design No. 35, to complete this symmetrical arrangement by placing the lending library in the central line between the reading and news rooms, and at the same time to provide the reference library on the ground floor with easy and separate access from the principal entrance." It was easy, for instance, to draw a line obliquely from the angle of frontage to the apex of the plot as a principle of disposition; but only one design has followed this system. Another important condition of a public library on a large site is that the principal rooms should be on one floor, and we are not surprised that a large number of the competitors, guided by the knowledge and practical experience of the librarian, Mr. Oswald T. Hopwood, have adopted the single-floor arrangement. If the cost is to be taken as any criterion of merit—and we believe in this case the committee have made it an indispensable condition—the two-storied schemes will, of necessity, be placed on one side. No doubt a more dignified elevation is obtained by a second story; but for the purpose of administration the librarian ought to be able to command the whole of the departments on one level. The ground-floor distribution is also decidedly better for lighting.

To take the designs which have been awarded the first and second premiums, Mr. A. E. J. Guy (No. 35) aligns his reading and news-rooms at the obtuse angle of frontage, with the principal entrance between at the junction of main roads. Forming equal angles with the ends of these rooms is the entrance corridor, and in the same axis is arranged the lending library, which is an elongated octagon running north and south. This shape has been given to bring the ends of this room in agreement with the obtuse angle. It is lighted from a glazed roof. The reference library occupies the space on the north-east boundary, being shaped to that outline. On the Bedford-road side the triangular space left by the direction of lending library is filled up with a mending room, store, &c., so that every inch of the area has been utilised. The lobby space for borrowers is obtained by glazed partitions on the canted sides of octagonal end of lending library, and by the counter, which projects into it, there being a door in the centre of hall for ingoing borrowers, and exits on the canted sides, by which arrangement confusion is avoided. Glazed partitions also form the inner sides of news-room and reading room, that in the news-room separating it from the reference library. The access to each department from the central hall is separate. By this plan it will be seen all the rooms are placed on the ground floor, the upper story plan having only the librarian's room—a Continental arrangement to enable a better supervision of the departments—this room being formed by the triangular space inclosed by the sides of lending library and the reading and news room. The gallery round lending library is accessible from this room, which is lighted by an octagon lantern and through glazed partition of lending library. The committee-room forms the angle over entrance with a circular oriel, and the caretaker's rooms are also provided here. By this scheme a complete elevation can be erected within the estimated cost, and the reference library left as a future extension without sacrificing the symmetry of the design. The assessor remarks in his report that the first portion to be erected can be carried out for the sum named. The cubing is taken at 6½d. for the first erected portion, and 6d. for the reference library, as only an external boundary wall and roof will be necessary to be erected, the walls of the lending library and newsroom being utilised for the reference library. The elevations, shown by black chalk drawings, are treated in a plain brick style, with projecting bays to the front reading and news-rooms, with gabled lights above. Certain suggestions are made by the assessor —one is that the librarian's room be omitted and the committee-room be used for the purpose, that the central bookcases in the lending library be placed lengthwise, that a space for storage of books be screened off from the reference library, that the caretaker's residence be placed at the north, and other details. The elevation to the main roads may with advantage be improved. We do not altogether like the outline and details of the entrance block, nor the treatment of the centre below the cupola. On the other side, the author has realised the value of making a good lending library the backbone of a plan that can be developed without disturbing the symmetry.

The design of Mr. Sidney R. J. Smith (No. 4) is unsymmetrical; the lending library faces Cumberland-place, and behind it, placed parallel-wise, is the reading-room, and at the north end the reference library. The newsroom is placed with its front windows to London-road, and is broken to fit the oblique line of the eastern boundary; but the main walls are well arranged in parallel lines for roofing, and are at right angles to the straight line of western boundary. There is a good commodious hall, with librarian's room on the left side, opening into hall by a glazed partition, a good lobby for borrowers taken out of the corner of lending library, and distinct entrances into the reading room and reference library. The latter is a future addition. We object to the waste triangular spaces left on the eastern side, which cannot be utilised, and also to the broken outline of this and the main frontages. An octagon stair turret at side of entrance is carried up as a circular brick tower crowned by a cupola, and this has been artistically treated in red brickwork. The section shows three span roofs, with top lights running along the parallel ridges. All the rooms are on the ground floor. We think the numerous small breaks would entir destroy the value of the frontage.

Other designs show that their auth have accepted the idea of placing the m reading rooms in front, disposed angle-w with a central axis; but from various cau have failed to fully carry out the schen No. 10 (Mr. E. Cooper Poole), has a pl that certainly might have been work out with more successful results. The rea ing room and news-room on each side of t central entrance are well located with fr windows, but the lending department h been sacrificed instead of being made central room. There is a commodic entrance and borrower's lobby in front, a the drawings are bright, and show mu careful study. No. 2 (Mr. H. T. Ha Regent's Park) has a Late Gothic gabl treatment of elevation in red brick a stone, and tiled roof, and the arrangeme of reading and news-room are the same in the last, with a good central entrance a lobby for borrowers projecting into t lending library; but this department spoiled by the irregularity of its shape. is top-lighted. The reference library shown on the western side. The same pri ciple is also seen, but more cleverly manage on the plan of No. 24 (Messrs. Farrow a Nisbett, Winchester) who have hit upon t principle of No. 35; but the lending librar instead of being placed lengthwise with t axis, is disposed at right angles thereto wi its length east and west. The news a reading rooms are on each side of a spacio entrance, each with its distinct doorwa and there is a wide borrowers' spa immediately in front of the entrance pr jecting into the lending library, which lighted by a lantern. The author mak the future reference library a second-sto addition. No. 3, by a well-known hand, a clever set of designs. The elevation, red brick, is imposing, and picturesque treated with some nice detail. The pl shows an ingenious disposition of the room Unlike many others, the author places t lending library on the east side of entran with librarian's room next, so as to comma the entrance. There is a spacious lobby f borrowers, well placed in reference to t entrance, and some useful circular recess in the reading-room on the other sid the entrance corridor appears tortuou though this arrangement was doubtle intended to restore proportion to the roo by throwing the irregularity of the site in the centre. The Bedford-road frontage h been made a more attractive elevati than in many of the other designs the windows of the reading and new rooms. No. 1 (Mr. C. J. Marshall, Gre Queen-street, Westminster), shows the e trance at the north end of front towar the main road, the news and reading-roo being disposed round the angular frontag these have projecting bays. The lendi library forms the north side in connecti with the entrance, and between these bloc a small rectangular area is obtained for ligh but much too small for that purpose. T plan is single-storied, and the referen library is intended to be placed in the northe portion of site. No. 14 is another desi which throws the irregularity of site into t lending library, and the arrangement proposed for the present buildings wou make a very incomplete design. A glaz roof is indicated over this department, whi has a large serving counter. The extern design is rather heavy and formal, in a sort Italian style. Messrs. L. and A. C. Housto Serjeants' Inn (No. 7), adopt a centr hall of circular form, access to which given by a wide corridor entrance. A porti of the circular hall forms the counter to len ing library, which is rather awkward. T news-room is irregular in shape on left entrance. The reading room is entered al separately from circular hall, and is light

the west side. Committee and caretaker's m in the north angle. The hall is domed, th side lights. A clever plan is No. 36 r. S. C. Greenwood, Southampton), based the circular system. The circular lend- ; library, with radiating cases and tables, surrounded by a 5ft. corridor, outside ich, comprising the angles of site, are the ding room, news-room, and reference- rary, fitted with tables. The entrance is the junction of the two roads; the rowers' space is taken out of the lending rary. The design is well worked out, ugh the principle would scarcely be suit- e. The design is Renaissance, of two ries over the entrance block, the circular rary having a lantern roof in centre, with f-lights over the surrounding rooms. other very able arrangement is No. 13 r. H. Branch, Cheapside), who has cleverly naged to fill up the irregular site by ming a bold, semicircular side to the read- -room which faces the east. A central lend- ; library, the axis of which is parallel to lford-road and in a line with the main rance, has the news-room on the west side l the said reading-room on the east. It has an idal end to the north, and a range of iron ars on each side, which carry a gallery. arrangement of this central department leverly managed, and is covered by glazed nsverse roofs in three spans. A two-storied vation, with three stories in the centre, shown, the design being indifferent in le and detail. No. 9 (Mr. Robt. J. Beale, stminster), has a good general arrange- nt, but the elevations in the Italian style much broken, and would be costly. The ner of lending library is made the nter. No. 8 (Mr. S. Liddon Walters, hopsgate-street) has a well set-out plan, walls arranged to fit the site. The news- m fills up the angle between entrance ridor and reading room, and has a semi- gonal front to the road. The position of borrower's counter, forming one side of rance corridor and lending library, which n the north side of corridor, would be onvenient. The librarian is central in ition. The grouping and lighting are isfactory, and the elevations show llioned windows, and a stone treatment Renaissance character is adopted. No. 17 cleverly-grouped plan, with good space lobby out of entrance hall. The reference ary is shown over lending library; ding rooms are top-lighted. A nicely- wn broken-gabled elevation is sent. ome of the authors, to produce regularity the walls of their principal rooms, have, we have noticed before, sacrificed the ametry of the lending library. We only briefly refer to a few others. . 23 (Mr. W. S. Skinner) places the read- -room along the western front obliquely; news-room is on the east side, its end hted in front. It is unfortunate that the hor should have spoilt his entrance by the arian's room, which has been wedged in ween the porch and the news-room, as it ght have been arranged in a more central ition with advantage, and have produced ore regular shaped lending library. No. (Mr. John Johnson, A.R.I.B.A.) has a her expensive Renaissance design; the n has some merit in the reading and ws-rooms, the centre entrances are well ced, but the counter of the lending library awkward in arrangement. No. 37 is an lian design, showing excellent lighting windows which are on both sides of ding-room, and admitting of improve- nt. No. 18 has thrown the awkward gle on the east side into the entrance- l, and has thereby spoilt it for effec- e interior treatment. No. 31 has well-arranged borrowers' lobby in tre between news and reading rooms, reference library being in the rear, as a ure addition. The style is Late Gothic. . 33 (Messrs. Gutteridge and Mitchell, Southampton) has a dignified red brick elevation, a centre with gabled wings; the plan has a rather cramped entrance, though well considered in other respects. No. 27, by Messrs. Karslake and Mortimer, is scarcely happy in the junction of lending library and reading room. Messrs. Quilter and Wheel- house have a set of drawings showing a dignified red brick, two-storied elevation with domical circular corner between news- room and lending library—the latter is arranged on the "alcove" system, and is side lighted. Plan No. 27 is not cleverly disposed, and the junction of lending library and news-room is awkward. We have no space to refer to other designs which have missed the mark. Taking the designs as a collection, they show much talent and considerable labour in their pre- paration. The committee having acquired a larger site than required for the present buildings, it is very important that the design to be erected for the limited sum of £3,500 should be so far complete in its plan and group- ing as to be no disfigurement in its present imperfect condition. Many of the authors, by reserving a space on one side of the plot for the future reference library, have pro- duced designs which would not be archi- tectural or agreeable till they were completed, and those portions erected first within the cost would be not only imperfect, but un- sightly. The selection of a design which contemplated an additional story would be for the same reason objectionable. The main frontage, at least, should be completed in the first outlay; and any reserved space for future extension should be better on the side (the west side in this case) which is less exposed to public view.

HOT-WATER ENGINEERING.—XIV.

Supply of Hot Water for Baths and Domestic Purposes.

other forms of cylinder apparatus.

THERE has only been one persistent attempt to improve upon the ordinary method of connecting up the pipes in the cylinder ap- paratus, and this particular method will be described. It will not, however, come within the province of these papers to offer a criticism, whether in its favour or otherwise; but from the various actions and phenomena that have been explained it will be within the readers' power to judge what advantages, or the reverse, may re- sult from the method adopted. The other un- usual forms of apparatus to be described are the outcome of special requirements, as will be ex- plained.

Fig. 45 shows the apparatus just referred to, which is known as Dyer's system, being pro- moted by an engineer of that name. The cylin- der, as will be seen, occupies its customary place close to the range or boiler, but is some- times placed lower than usual, as the primary re- turn pipe being carried below, there is no special need to keep the bottom of the cylinder above the top of the boiler, as in the ordinary arrangement. The primary flow is carried from the top of the boiler to the cylinder, entering about half-way up, as usual, but, instead of ter- minating there, it is branched just at its con- nection and continued up the house, having also communication with the top of the cylinder, as shown. This practically amounts to a connect- ing pipe being put in between the primary and secondary flow pipes, as shown in dotted lines at Fig. 46.

After leaving the top of the cylinder this pipe is carried in all respects the same as an expan- sion service or secondary flow, and it is returned in the same manner, except that its lower con- nection is different to what has been explained up to the present, and is quite peculiar to this system.

From the illustration (Fig. 45) it will be seen that the return does not enter the cylinder at a high point, but is carried right below, and one branch is carried up into the bottom of the cylinder, and the other is carried on and turns up into the bottom of the boiler. It may occur to some of the readers that to circulate below the boiler is opposed to general good results, but this is not the case. In some instances it becomes desirable, and with ordinary precautions it can be effected with every satisfaction and quite free from objections.

The most uncommon feature in this apparatus

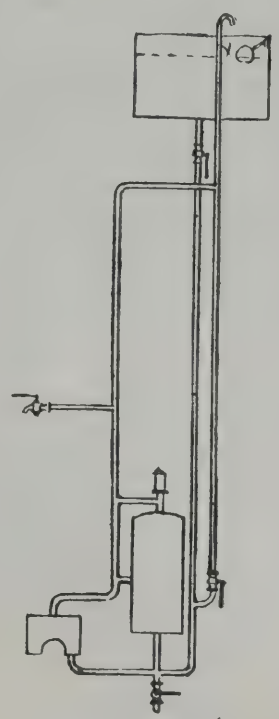


FIG. 45

is the point at which the cold supply service is connected. This enters the secondary return pipe down near the cylinder, as shown, so that upon the opening of a tap the cold water flows directly into this pipe. It will be noticed that in the drawing the secondary return pipe is shown as entering the cold supply, but the re- sult is the same either way when a tap is opened, and so also is it when the taps are closed and the water circulating. In the published illustra- tions of this apparatus a safety-valve is shown affixed to the top of the cylinder as now illus- trated (Fig. 45). The writer cannot bring him- self to agree with this as being the correct posi- tion for it, as will be fully explained when speaking of these articles.

The peculiarity of inserting a connecting pipe between the primary and secondary flow pipes, as Fig. 46, can often be put to good use with an

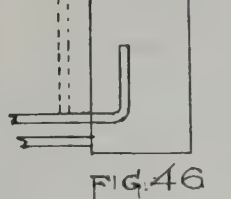


FIG. 46

ordinary apparatus when circumstances make it desirable, as the effect is to get hot water in the secondary flow quicker than when all water from the boiler has to pass through the cylinder. This result, however, only permits of a limited quantity being obtained in this shorter time.

When the flow pipes are connected up in this manner the water in circulating normally passes up the flow pipe from the boiler in the usual way, but upon reaching the cylinder only a part enters and takes the passage through and out by the secondary flow at top, while part takes the direct passage through this connecting pipe from primary to secondary flow without affecting the contents of the cylinder. The result is that the water which takes this direct route arrives up at the draw-off taps quicker by a deal than that

which has to find a passage through the cool water in the cylinder, but, of course, it is only the contents of the pipe that can be drawn hot, and unless this pipe be of considerable length the quantity of hot water will be very small. Of course, this only alludes to the time at which the fire is first lighted and the contents of the apparatus cold, or nearly so.

An instance in which this method was adopted successfully occurred where there was just one bath of very hot water wanted every morning. The existing apparatus of the ordinary cylinder system was unable to give this unless the fire was lighted very early, the reason being that the boiler in the range was hardly powerful enough, and the pipes (secondary flow and return) above the cylinder extended a considerable distance. This length of pipe, which amounted to about 120ft. each way, held sufficient water to materially increase the aggregate contents of the apparatus, and the distance it reached necessarily made the time longer in which the hot water could reach the bath in question, which happened to be nearly at the furthest point.

In this case the long length of pipes and the quantity of water contained in them was put to good use in the following way: It was found by rough calculation that the pipes themselves held more than sufficient water for the one bath required, and it was therefore proposed to rely upon their contents for this purpose without drawing from the cylinder; but that this water might get hot more quickly than hitherto the primary and secondary flows were joined as Fig. 47, which practically allowed all the heated

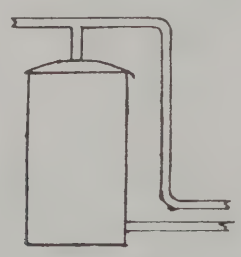


FIG. 47

water from the boiler to go directly up to the point required, and consequently in the shortest possible space of time. This was successful, but the method is not recommended; only shown to illustrate what can be done to meet a very special circumstance. The drawbacks to this are, firstly, the limited quantity of water that could be drawn *hot*, but which would, of course, be very quickly replaced; and there would be a great loss of heat from these long service pipes, as the hottest water passes directly into them; and consequently there would be the utmost need of their being covered to prevent radiation, or good results would be greatly minimised. The important subject of covering pipes, &c., for the conservation of heat will be treated in the next paper.

PRICES.—XVI.*

(All Prices Include Profit).

SLATES (*continued*).

				£	s.	d.
Best Bangor Blue or Red, delivered, including builders' profit per 1,200—						
12 by 6	ditto	ditto		2	5	0
13 by 7	ditto	ditto		3	10	0
14 by 7	ditto	ditto		3	17	0
14 by 8	ditto	ditto		4	15	0
14 by 10	ditto	ditto		5	15	0
14 by 12	ditto	ditto		6	15	0
16 by 8	ditto	ditto		5	15	0
16 by 9	ditto	ditto		6	10	0
16 by 10	ditto	ditto		7	10	0
16 by 12	ditto	ditto		8	0	0
18 by 9	ditto	ditto		7	10	0
18 by 10	ditto	ditto		8	5	0
18 by 12	ditto	ditto		9	10	0
20 by 10	ditto	ditto		10	5	0
22 by 11	ditto	ditto		11	10	0
22 by 12	ditto	ditto		12	10	0
24 by 12	ditto	ditto		15	0	0
24 by 14	ditto	ditto		17	10	0
Medium Bangor Blue or Red—						
16 by 8	ditto	ditto		5	10	0
16 by 9	ditto	ditto		6	10	0
16 by 10	ditto	ditto		7	5	0
Medium Bangor, &c.—				7	15	0
16 by 12	ditto	ditto		7	5	0
18 by 9	ditto	ditto		8	0	0
18 by 10	ditto	ditto		9	5	0
18 by 12	ditto	ditto		9	15	0
20 by 10	ditto	ditto		11	5	0
22 by 11	ditto	ditto		12	10	0
22 by 12	ditto	ditto		15	0	0
24 by 12	ditto	ditto		17	5	0
24 by 14	ditto	ditto				

Slate Slabs, planed two faces, and edges sawn, delivered, including builder's profit. From 3ft. to 5ft. long and from 1ft. to 2ft. 6in. long. Slabs—

⅜in. as they rise			per foot sup.	0	0	11½
Ditto	sawn to size (net)		ditto	0	1	1
1in.	ditto		ditto	0	1	1
Ditto		ditto	ditto	0	1	2
1¼in.	ditto		ditto	0	1	3½
Ditto		ditto	ditto	0	1	5
1½in.	ditto		ditto	0	1	4
Ditto		ditto	ditto	0	1	8
2in.	ditto		ditto	0	1	11
Ditto		ditto	ditto	0	2	2
2½in.	ditto		ditto	0	2	8
Ditto		ditto	ditto	0	3	0
3in.	ditto		ditto	0	3	6
Ditto		ditto	ditto	0	4	0
Slabs, 5ft. to 7ft. long, and 1ft. to 3ft. 6in. wide—						
⅜in.	ditto		ditto	0	1	2
Ditto	measured net		ditto	0	1	3
1in.	ditto		ditto	0	1	3
Ditto		ditto	ditto	0	1	4½
1¼in.	ditto		ditto	0	1	6
Ditto		ditto	ditto	0	1	7½
1½in.	ditto		ditto	0	1	8
Ditto		ditto	ditto	0	2	0
2in.	ditto		ditto	0	2	4
Ditto		ditto	ditto	0	2	7
2½in.	ditto		ditto	0	2	10
Ditto		ditto	ditto	0	3	1
3in.	ditto		ditto	0	3	6
Ditto		ditto	ditto	0	3	9
Slabs, 7ft. to 9ft. long, and 1ft. to 4ft. wide—						
1in.	ditto		ditto	0	1	5
Ditto		ditto	ditto	0	1	6
1¼in.	ditto		ditto	0	1	7½
Ditto		ditto	ditto	0	1	9½
1½in.	ditto		ditto	0	1	11
Ditto		ditto	ditto	0	2	1
2in.	ditto		ditto	0	2	6
Ditto		ditto	ditto	0	2	9
2½in.	ditto		ditto	0	3	0
Ditto		ditto	ditto	0	3	3
3in.	ditto		ditto	0	3	9
Ditto		ditto	ditto	0	3	11
Slabs, 9ft. to 10ft. long, and from 1ft. to 5ft. wide—						
1¼in.	ditto		ditto	0	1	10
Ditto		ditto	ditto	0	2	0
1½in.	ditto		ditto	0	2	1
Ditto		ditto	ditto	0	2	4
2in.	ditto		ditto	0	2	10
Ditto		ditto	ditto	0	3	0
2½in.	ditto		ditto	0	3	3
Ditto		ditto	ditto	0	3	6
3in.	ditto		ditto	0	4	2
Ditto		ditto	ditto	0	4	6

Self-faced splitting slate slabs 3ft. to 5ft. long, 1ft. to 2ft. 6in. wide—

⅜in.	ditto		ditto	0	0	9½
Ditto		ditto	ditto	0	0	10½
¾in.	ditto		ditto	0	1	0
Ditto		ditto	ditto	0	1	1
1in.	ditto		ditto	0	1	1
Ditto		ditto	ditto	0	1	2½
1¼in.	ditto		ditto	0	1	3½
Ditto		ditto	ditto	0	1	5
1½in.	ditto		ditto	0	1	5
Ditto		ditto	ditto	0	1	7½
2in.	ditto		ditto	0	1	11
Ditto		ditto	ditto	0	2	3
2½in.	ditto		ditto	0	2	9
Ditto		ditto	ditto	0	2	11
3in.	ditto		ditto	0	3	3
Ditto		ditto	ditto	0	3	9
Self-faced slabs 5ft. to 7ft. long, and 1ft to 3ft. 6in. wide—						
⅜in.	ditto		ditto	0	0	10½
Ditto		ditto	ditto	0	0	11½
¾in.	ditto		ditto	0	1	1
Ditto		ditto	ditto	0	1	2
1in.	ditto		ditto	0	1	3½
Ditto		ditto	ditto	0	1	5
1¼in.	ditto		ditto	0	1	6
Ditto		ditto	ditto	0	1	7½
1½in.	ditto		ditto	0	1	7½
Ditto		ditto	ditto	0	1	9½
2in.	ditto		ditto	0	2	4
Ditto		ditto	ditto	0	2	6
2½in.	ditto		ditto	0	2	10
Ditto		ditto	ditto	0	3	1
3in.	ditto		ditto	0	3	6
Ditto		ditto	ditto	0	3	9

Number of feet to a ton of slabs—

⅜in. thick average		300	feet super.
¾in.	ditto	200	ditto
1in.	ditto	150	ditto
1¼in.	ditto	120	ditto
1½in.	ditto	100	ditto
1⅝in.	ditto	85	ditto
2in.	ditto	75	ditto
2½in.	ditto	60	ditto
3in.	ditto	50	ditto

Slate cisterns delivered and put together on site, including profit, and cartage to add if only one or two cisterns.

⅜in. thick (including all labours)			per foot super	0	1	9
1in.	ditto	ditto	ditto	0	1	10½
1¼in.	ditto	ditto	ditto	0	2	1
1⅜in.	ditto	ditto	ditto	0	2	3½
1½in.	ditto	ditto	ditto	0	2	7
2in.	ditto	ditto	ditto	0	3	3
2½in.	ditto	ditto	ditto	0	3	7
3in.	ditto	ditto	ditto	0	3	10
Add for copper bolts				0	0	3

Cisterns requiring slabs over 7ft. long, 2ft. 6in. wide, are extra. (See "Slabs.")

Those containing less than 20 gallons charged extra.

Cisterns should not be less than 1in. thick.

Prices of cisterns containing a spec quantity, delivered and fixed; galvanised b oil cement, &c., included:—

				£
50 gallons 1in. thick			each	2
80	ditto	ditto	ditto	3
100	ditto	ditto	ditto	3
120	ditto	1¼in. ditto	ditto	3
150	ditto	ditto	ditto	4
175	ditto	1¼in. ditto	ditto	5
200	ditto	ditto	ditto	6
250	ditto	ditto	ditto	7
275	ditto	ditto	ditto	7
300	ditto	ditto	ditto	7
350	ditto	ditto	ditto	8
400	ditto	1¾in. ditto	ditto	10
450	ditto	2in. ditto	ditto	12
Pickling or salting tanks—				
21 by 18 by 18 outside, with flanges and bolts			ditto	1
24 by 18 by 18			ditto	1
30 by 18 by 18			ditto	1
30 by 21 by 21			ditto	1
36 by 24 by 24			ditto	2
42 by 24 by 30			ditto	2
48 by 30 by 30			ditto	3
54 by 24 by 8			ditto	1
50 by 30 by 30 with division			ditto	4
Pickling tanks, &c., flush outside, including all labours—				
21 by 18 by 18			ditto	1
24 by 18 by 18			ditto	1
30 by 18 by 18			ditto	1
30 by 21 by 21			ditto	1
36 by 24 by 24			ditto	2
42 by 24 by 30			ditto	3
48 by 30 by 30			ditto	3
54 by 24 by 8			ditto	1
50 by 30 by 30 with division			ditto	5
Ditto if made to dimensions, with flanges and bolts—				
1in. thick			per foot super	0
1¼in. ditto			ditto	0
1½in. ditto			ditto	0
1¾in. ditto with division			ditto	0
1½in. ditto ditto			ditto	0
Ditto, made flush, including all labours—				
1in. thick			per foot super	0
1¼in. ditto			ditto	0
1½in. ditto			ditto	0
1¾in. ditto, with division			ditto	0
1½in. ditto			ditto	0
Copper bolts extra (for less than 18ft. super)			ditto	0
Ditto, less than 30ft.			ditto	0
Ditto, over 30ft.			ditto	0
Milk vessels. 1½in. thick, made flush, 4in. deep inside, and with circular inside angles—				
Plain slate, rubbed inside and out, measuring size of bottom, per foot super				0
Enamelled inside and out and all edges, per foot super				0
Brass turned plug and upright handle, including hole and fitting, each				0
Sinks. 1in. slate bolted together the same as cisterns			per foot super	0
1¼in.	ditto	ditto	ditto	0
1½in.	ditto	ditto	ditto	0
2in.	ditto	ditto	ditto	0
Shelves, fixed complete—				
1 quarry planed				0
1¼	ditto			0
1½	ditto			0
Urinal divisions—				
¾ rubbed or sanded one side				0
ditto	ditto	two sides		0
1 ditto	ditto	one side		0
1 ditto	ditto	two sides		0
1¼ ditto	ditto	one side		0
ditto	ditto	two sides		0
1½ ditto	ditto	one side		0
ditto	ditto	two sides		0
Add for enamelling plain colours				0
1in. rubbed edge			per foot run	0
Ditto rounded			ditto	0
Ditto groove and cement			ditto	0
1½in. rubbed edge			ditto	0
Ditto rounded			ditto	0
Ditto groove and cement			ditto	0
1½in. rubbed edge			ditto	0
Ditto rounded			ditto	0
Ditto groove and cement			ditto	0
3 by 6 hollowed channel			ditto	0
3 by 7	ditto	ditto	ditto	0
2 by 8	ditto	ditto	ditto	0
3 by 8	ditto	ditto	ditto	0
4 by 9	ditto	ditto	ditto	0
Stops to channel			each	0
Holes for traps			ditto	0
Ditto for traps rebated			ditto	0
Short grooves stopped for opening			ditto	0
1in. rounded corners on rubbed edge			ditto	0
Ditto	ditto	rounded ditto	ditto	0
1¼ and 1⅓	ditto	rubbed ditto	ditto	0
Ditto	ditto	rounded ditto	ditto	0
Stops to grooves			ditto	0
Slate baths, delivered, including profit. Plain slate, sanded inside, fitted with brass tap, plug, and washer, chain, and pin, complete, and grooved and fitted ready for fixing—				
2ft. deep, 5ft. long, 2ft. wide, each				6
Ditto, enamelled self-colour inside, each				7
Ditto ditto in imitation of Sienna marble inside, each				8

* All rights reserved by the Author.

		£	s.	d.
amelled slate wash-stands and dressing-able tops—				
by 18 with backs 6in. high	each	1	8	6
by 20 ditto 7in. ditto	ditto	1	10	0
by 20 ditto 7in. ditto	ditto	1	15	0
by 22 ditto 7in. ditto	ditto	2	0	0
by 24 ditto 7in. ditto	ditto	2	4	6
by 24 ditto 7in. ditto	ditto	2	8	0
d for shelf		0	3	6
tto, medium finish—				
by 18 with backs 6in. high	each	1	12	6
by 20 ditto 7in. ditto	ditto	1	14	0
by 20 ditto 7in. ditto	ditto	2	0	0
by 22 ditto 7in. ditto	ditto	2	4	0
by 24 ditto 7in. ditto	ditto	2	10	0
by 24 ditto 7in. ditto	ditto	2	15	0
tto, best finish—				
by 18 with backs 6in. high	ditto	2	0	0
by 20 ditto 7in. ditto	ditto	2	7	6
by 20 ditto 7in. ditto	ditto	2	10	0
by 22 ditto 7in. ditto	ditto	3	0	0
by 24 ditto 7in. ditto	ditto	3	10	0
by 24 ditto 7in. ditto	ditto	3	16	0
olo mouldings extra per foot run		0	0	6
ee ditto ditto ditto		0	0	9
unded corners on square edge ditto		0	0	6
to rounded or moulded		0	1	0
in holes for taps ditto		0	0	9
to for basins ditto		0	1	3
to ditto rebated ditto		0	2	3
amelled slate slabs as wall linings, &c., fixed omplete, including profit—				
. plain colours		0	2	4
to imitation marble		0	2	7
. ditto ditto		0	2	6
to ditto ditto		0	2	9
. in plain colours		0	2	9
to imitation of ordinary marbles		0	3	0
. plain		0	3	0
to ditto ditto ditto		0	3	3
. ditto		0	3	3
to ditto ditto ditto		0	3	6
. ditto		0	4	0
to ditto ditto ditto		0	4	3
uldings, see above. Add 50 per cent. for amelling per foot run, add for difficult arbles 8d. to 6d. per foot super—				
ngers, quarry planed both sides, nd fixed complete—				
6in. long	each	1	7	0
ditto	ditto	1	15	0
6in ditto	ditto	2	0	0
gle Mangers	ditto	1	10	0
l for bevelled ends and caps	ditto	0	10	0
s—				
l. by 9in., sawn face and ends, per foot run				
xed complete, level or sloping	ditto	0	1	1
by 9in.	ditto	0	1	4
by 9in.	ditto	0	2	0
rting, ¾in. by 6in	ditto	0	0	9
to ¾in. by 9in.	ditto	0	0	11
to 1in. by 11in.	ditto	0	1	3
ps, quarry planed both sides, nd fixed complete—				
by 10in. tread, 7in. riser	ditto	0	1	6
l. by 10in. ditto ditto	ditto	0	1	8
l. by 10in. ditto ditto	ditto	0	1	10
by 10in. ditto ditto	ditto	0	2	3
h risers grooved to treads, add	ditto	0	0	4
l for rubbed face	ditto	0	0	2
bours, see *ante*)				
umns, lathe turned (delivered aly)—				
. diam., not exceeding 5ft. long	ditto	0	2	9
ditto ditto	ditto	0	3	6
ditto ditto	ditto	0	4	4
l. ditto ditto	ditto	0	5	0
ditto ditto	ditto	0	6	0
l. ditto ditto	ditto	0	6	10
ditto ditto	ditto	0	7	11
l. ditto ditto	ditto	0	9	0
ditto ditto	ditto	0	10	0
ders of enamelled slate, 4ft. or t. 6in. long, 12in. clear inside easurement, fixed complete—				
4in. by 3in. section	each	1	3	0
to ditto 4½ by 3½	ditto	1	5	0
ing only	ditto	0	2	9
idstones, &c.:—				
plain ledgers, enamelled				
ack per foot super.		0	2	6
ditto ditto	ditto	0	3	0
by 2ft. 6in. by 7ft. 6in., enamelled ack	each	3	3	0
ditto ditto	ditto	4	0	0
tstone	ditto	1	12	0
by 2ft. 6in. by 6ft. 6in. ledgers ditto	ditto	2	5	0
ditto ditto	ditto	3	0	0
bs 1in. deep, rounded or edge	per foot run	0	2	9
n cut letters	each	0	0	2½
o ditto gilt	ditto	0	0	5
work:—				
er, per hour		0	0	10½
e mason		0	0	11
ourer		0	0	7
son's labourer		0	0	7½

Unless the builder keeps a slater (an unusual ng for a builder to do), he hires these of a e merchant, and at least another penny must added.

		£	s.	d.
es for jobbing work—				
ies, not including cartage	each	0	0	1½
ntess	ditto	0	0	2½
hess	ditto	0	0	3½
nails, per pound		0	0	7
per ditto ditto		0	1	6
putty, per pound		0	0	6
e and hair, per hod		0	0	7
ent fillet, per foot run		0	0	1½

CARPENTER.

		£	s.	d.
All labour and materials—				
Centring to vaults, include striking, per 10 ft. super		1	5	0
Groins in ditto, extra, per foot run		0	0	6
Centring to trimmer arches left in, per foot super		0	0	6
Add for lagging for lathing		0	0	3
Centring for rough or fair arches, measured soffit only		0	0	6
Add for Gothic or elliptic beads		0	0	1
Turning piece to 4½ soffit		0	0	2
For extra large centring, take the soffits same prices; allow for struts and extra cost hoisting and fixing.				
Bull's-eye centres twice the price of ordinary for medium size openings, and add for small ditto.				
Roof and wall battens—				
¾ by 2 slate battens for Countess slating per square		0	4	6
¾ by 2½ ditto ditto ditto		0	5	0
1 by 2½ ditto ditto ditto		0	5	9
Add for ladies		0	0	6
Deduct for Duchess		0	0	6
¾ by 1½ wall battens, 1ft. 6in. apart per square		0	3	0
¾ by 2 ditto ditto ditto		0	3	9
1 by 2 ditto ditto ditto		0	4	6
¾ by 1 plain tile battens ditto		0	4	0
¾ by 1½ ditto ditto ditto		0	4	6
¾ by 2 ditto ditto ditto		0	5	6
1 by 1 plain tile battens ditto		0	4	0
1 by 1½ ditto ditto ditto		0	4	6
Bracketing:—				
1in. deal to eaves or cornices, outside or inside work per foot super.		0	0	4
1½in. ditto ditto ditto		0	0	4½
1¾in. ditto ditto ditto		0	0	5
Add for circular on plan 25 per cent.				
Angle brackets extra	each	0	1	0
Bracketing to soffits of eaves or round girders, &c.	ditto	0	0	4
Ditto to shopfront facias out of—				
3 by 1½, 2ft. apart	ditto	0	0	4
Ditto ditto 1½ft. ditto	ditto	0	0	5
Ditto 4 by 2 ditto	ditto	0	0	6
Rough boarding, fixed—				
¾in. nailed to quarters, not included, per square		0	14	0
¾in.		0	15	0
Ditto edges shot on site	ditto	0	16	6
1in.		0	16	0
Ditto ditto ditto	ditto	0	17	6
1¼in.		0	18	0
Ditto ditto ditto	ditto	1	0	0
1½in.		1	5	0
Ditto ditto ditto	ditto	1	7	0
2in.	ditto	1	11	0
Ditto ditto ditto	ditto	1	13	0
Add per firring to falls	ditto	0	7	6

Note.—The prices for rough boarding are for imported sawn boards up to and including 1¼in., and for home sawn for 1¾in. and 2in. out of rough common deals.

Add for grooving and tonguing	ditto	0	2	6
Add for fixing on ceiling	ditto	0	1	0
Sound boarding (joists measured in)—				
¾in. boards and ¾in. fillets per square		0	12	6
¾in. ditto ¾in. ditto	ditto	0	14	0
1in. ditto 1in. ditto	ditto	0	16	0
1¼in. ditto 1in. ditto	ditto	0	18	0
¾in. boarding and 3 by 2 quarters and canvassing per foot super		0	0	5½
¾in. ditto ditto	ditto	0	0	6
1in. ditto ditto	ditto	0	0	6½
1in. ditto and 4 by 2 quarters and ditto	ditto	0	0	7
Add for herring-boning		0	0	4
Fillets only:—				
1 by 1½ nailed on per foot run		0	0	1
1¼ by 1½ ditto	ditto	0	0	1½
1¼ by 2 ditto	ditto	0	0	1⅝
Sawdust filled in 4in thick per yard super.		0	1	0
Ditto, upright in partitions	ditto	0	1	3

BOOKS RECEIVED.

Dilapidations: a Textbook for Architects and Surveyors, 4th edition, with the most recent legal cases, by Banister Fletcher, Professor of Architecture and Building Construction King's College, F.R.I.B.A., &c. (London: B. T. Batsford, High Holborn), is a new and enlarged edition of a textbook well known to our readers. It is unnecessary for us to dwell again on the merits and arrangement of this treatise. The tabulated form in which it is arranged has many advantages for business men as well as students. The rights and liabilities of lessors and landlords, of lessees and other tenants, are concisely thrown into distinct paragraphs easy of reference and concise in statement. Thus, for example, a lessee looking over Table II. will see at one glance that he cannot compel his landlord to repair unless bound by contract; "that he must pay rent though premises be burnt down, unless there is an express covenant that rent shall cease"; that there is "no implied covenant that if landlord omit to do the repairs according to covenant he may do them, and deduct the amount from the rent"; that he is liable to repair even if roof be stripped by the wind"; and is liable to rebuild if house be blown down by tempest, and so on. References to legal cases are appended as footnotes to each page. The construction and meaning of covenants is also thrown into the form of a table, which can be committed to memory if need be. Thus the usual phrases, "habitable" and "tenantable repair," "good repair," and other terms are explained by reference to decisions. The method of taking dilapidations and waste is described item by item. Lord Esher's recent decision as to the meaning to be attached to ordinary covenants is quoted at length. Our readers may remember the judgment, which we gave and commented on, and which will henceforth be taken as a standard authority on the subject. Chapter VI. should be carefully studied by every student and young architect, as it gives dilapidations scheduled under the several trades, based on the covenants usually inserted. These are explained by notes in smaller type. The duties of surveyors, actions at law, the appointment of referees and umpire, under the Agricultural Holdings Act, 1883, are discussed. The appendix contains a useful epitome of dilapidations in the form of question and answers, which will be found of practical value; also extracts from the Conveyancing and Law of Property Act, 1881. A comprehensive and full index is given, and this edition may be regarded as being a very complete handbook on the subject.——*The General Machinist:* a practical introduction to the mechanism and machinery, edited by the editor of the "Industrial Self Instructor" (London: Ward, Lock, and Co.) This is an elementary treatise uniform with "The Stonemason and Bricklayer," lately noticed by us, and contains over 200 pages of closely printed instructions on mechanism, tools, and the general work of the machinist. The book is copiously illustrated by diagrams of mechanical details, and has at the end four folding plates illustrating details of steam-engine, force pump, machine tools, &c. The student and apprentice in the workshop will find many useful hints and suggestions.—— A new edition of *Walks in Epping Forest*, Percy Lindley's readable handbook to the Forest paths, has just been published; it is handy in size, and well illustrated.——*Bits of Canterbury Cathedral* is the title of a small but somewhat pretentious book which has just reached us, affording once again undoubted evidence of the trite remark that the more incapable the draughtsman the more ambitious frequently is his choice of subjects. Canterbury Cathedral, of all buildings in the country, has so often been well illustrated, like Salisbury and other familiar monuments of ecclesiastical art, that to represent it again in poor perspectives wretchedly reproduced serves no good purpose whatever. Our English cathedrals have suffered enough at the hands of vandals in the past, and that fact furnishes all the more reason why they should not be caricatured nowadays by would-be illustrators, who, in attaching their names to scribbles of our magnificent minsters and cathedrals, seek to be associated with great works of historic interest. The general perspective of Canterbury Cathedral, with which Mr. Walter Tallant Owen opens his book, shows the building in its entirety from an actually impossible point of view, and, like the rest of the drawings which follow, it is very poorly delineated. The baptistery, one of the most picturesque and interesting features in the cathedral precincts, is quite spoiled, and so is the well-known Norman staircase in the Close. The volume is published in New York by Wm. T. Comstock.——It is a pity that the Society of the Medical Officers of Health, and their editor, A. Wynter Blyth, M.R.C.S., couldn't invent an original title for the periodical they conduct, and in which they have published the reports of the recent Hygienic and Demographic Congress. *Public Health* was our title and our property, and, when discontinued, was amalgamated with this journal. We shall not trouble ourselves about the people who have picked up our old clothes; but really they might have turned them!

COMBINED PLUMB AND LEVEL.

A COMBINED plumb and level, which promises some advantages, has been patented in the United States by Garner and Connaughton, of Latourell Falls, Oregon. The sides of the stock form straight edges, and at its lower end is a mortise in which plays an inclosed plumb-bob over a glass plate provided with graduations visible through an opening. The bob is also visible through side glasses, through which likewise may be seen a removably secured

spirit-level set transversely in the stock, the cord by which the bob is suspended being seen across the level. A short steadying rod projects into an opening in the upper part of the bob, to prevent its rotation and permit a limited swinging motion, and the bob-cord extends up through a central recess or channel in the stock, a tubular extension being also supported to slide in the stock, through which the cord may be passed, to be secured to its cap, around which the cord may be wound when the tube is lowered into the stock. There are guide-lines on the stock and on the extension, whereby the latter may be set accurately, and the extension has an arm or cross-bar whose ends are in line with the straight edges of the stock, adapting the device for use on a longer surface than when the extension-tube is down to the stock. At one end of the stock is a spirit-level, and in its opposite edge is a swinging gravity-level, the weighted pointer of which is seated in a mortise having glass top and side plates, the latter marked with graduations. In a modified construction the recess for the bob-cord is mortised in the face of the stock and covered by a glass plate, the suspension device being a pivoted bar having at its upper end a pointer registering along a graduated scale.

ST. MARY'S, AMERSHAM, BUCKS.

By FREDERICK GEORGE LEE, D.D., F.S.A.

THERE is probably no town within thirty miles of London which still retains its leading ancient architectural features more markedly than Amersham, in the Deanery of Burnham, and county of Bucks.

As regards its houses and streets—very ancient and irregular, and exceedingly picturesque—many of them are Elizabethan, or of the earlier part of the 17th century; while the church, the Classic market-hall in brick, and the notable Drake almshouses,* harmonise tolerably well with all the more ancient Domestic edifices on either side of the long, single main street. There were several old hostels, here and there, a few good gentlemen's houses in the town;† a remarkable ancient building on the south side of the High-street, which was probably a cell or offshoot of some influential religious house. And although this building now comprises a saddler's shop and a straggling but capacious dwelling-house, it contains several features of architectural interest and archæological character. Some of the windows are very old; the oaken mouldings and chamfers are uniformly excellent, while certain of the recently covered-up pargetting is very artistic and well done. Moreover, the main part of the older cottages throughout the town are of singular antiquity and picturesqueness.

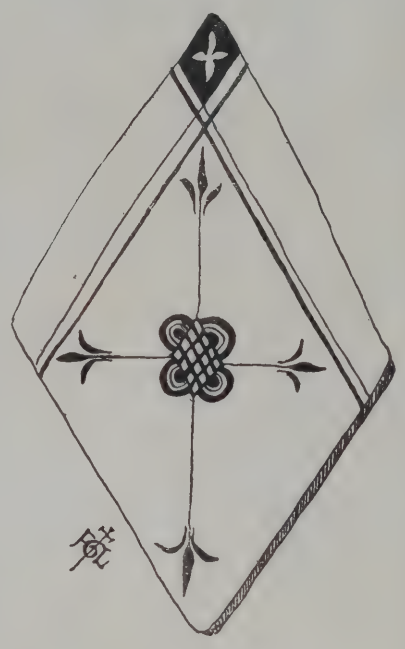
Anciently, Amersham returned two burgesses to Parliament. When it first became a borough remains uncertain. The earliest recorded members are Robert le Warrener and Ralph att Grove, A.D. 1300, and it was disfranchised in 1832.

There are four ancient manors, or reputed manors, in Amersham—viz., Raans, Shardloes, Wedon Hill, and Coleshill.

These have been held by the families of De Latimer, Brudenell, De la Vache, De Mandeville, Bohun, Tothill, Russell, Drake, Proby, Waller, and others. In certain cases the old manorial rights have been lost, while, as regards Raans, the substantial manor-house is now occupied by a farmer. This was built by a member of the Proby family, though one or two of the lower rooms are evidently of much greater antiquity.

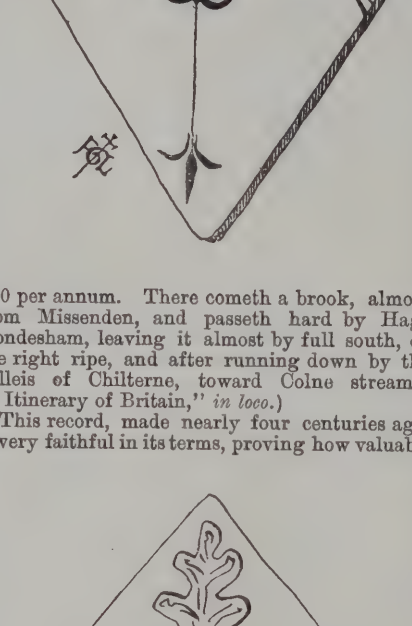
John Leland, vicar of Haseley, co. Oxon, the well-known and careful antiquary, thus describes it. He visited it under Henry VIII., and wrote in Edward VI.'s reign:—

"Hagmondesham, alias Hamersham, a right pretty market town on Fryday, of one street, built with tymber, standing on Buckinghamshire and Chilterne, two miles and a half from Little Missenden. The D. of Buckingham was chiefe lorde of it, vice the kinge; now the Lord Russell by gift, whoe dwellyth at Cheineis, 3 mile of by east. The paroch church standeth by north-east toward the middle of the town; and in a chapple on the north syde of it lyeth buryed Edmund Brudenell, father to Sir Robert Brudenell, late chief-justice of the Common Pleas, and Drew Brudenell, older brother to the said Sir Robert, and Helen his wife, daughter to —— Broughton, who dwelt at a Manor of his,



£40 per annum. There cometh a brook, almost from Missenden, and passeth hard by Hagmondesham, leaving it almost by full south, on the right ripe, and after running down by the valleis of Chilterne, toward Colne stream" ("Itinerary of Britain," *in loco.*)

This record, made nearly four centuries ago, is very faithful in its terms, proving how valuable



the results of Leland's peregrinations have been to subsequent students. At a period when change and destruction were working such havoc, he at all events efficiently aided in the preservation of facts, records, and traditions. The parish church of "Our Blessed Lady of Agmondesham," as it is termed in a deed dated 1492, stands a little to the north, about the centre of the town, and is a structure of good proportion and considerable size and interest. No account of it is on record in Domesday Book, its name being not even mentioned; but a Christian sanctuary and altar have no doubt stood here, though probably but small and humble, ever since the days of St. Birinus, of Dorchester. As at present built, that is, so far as the cruciform ground-plan is concerned, the church of Amersham was prob founded by Geoffrey de Mandeville,* who g it to the Abbot and Convent of Walden, in Es In the 22nd year of Edward III., the patron of the benefice was claimed and exercised by Abbot of Brecknock. Two, at least, of rectors became bishops, William de March Bath, and William Grey, Lord High Treas of England, and Bishop of Ely. The Rec House, a large and comfortable mansion o eminence to the north-west of the church beautifully situated. It appears to be about years old. On the south of the churchyard st a range of very old and picturesque brick timber erections, houses, shops, and out-bu ings, one of which, possibly that at the west of the block, was known as the "Church Hou where of old the sacristan and caretaker of church lived. The churchyard, which cont a remarkably old yew-tree, is full of graves memorial stones. It is not now open for buri a church cemetery, to the north-east, and near, being now used in its place. From a note made by an accomplished architect al fifty years ago, and subsequently publishe substance,† a good idea of the general ar tectural character of the church, as it then may be obtained.

"It consists of chancel, nave, clerestory, aisles, transepts and porch on the south side, tower of three stages at the west end. Ther nothing remaining earlier than Perpendicu except it may be some of the piers to the n which have the appearance of Late Decorated. church has been much modernised, and ther but little good work left. Perhaps the best is groining of the south porch, which has some bosses at the intersection of its ribs."

To the above may be added the fact that in restoration of twenty years ago, many fragm of stone carving were discovered, indicating the original edifice was probably of a Norman or Romanesque character, and several sculptured fragments of the dog-t ornament, within a deep hollow moulding, discovered in certain blocked-up windows, again opened. Portions of the latter fragm are still preserved, with several others of a date, in the Drake Chapel. It may also pointed out that in the south side of the chanc then partially restored and rebuilt from foundations—fragments of a Romanesque str course, of a well-known type, were discov in the lower portion, within a foot of the gro —a batch of facts which show remains of a ancient Christian sanctuary.

As a whole, the sacred building ranks onl the second-class of Buckinghamshire churc It is distinctly below those of Aylesb Wycombe, and Chesham in size, plan, inte and dignity, though not devoid of architect beauty and character. Its main parts of ex lent proportions are of Third-Pointed st though repairs and additions in Debased style a subsequent period ‡ have been frequently m Substantial alterations and new work were, recorded, added *circa* A.D. 1660, and ag about the year 1708. The interior at period, stuffed full of deal galleries, high p common benches, and "curtained pews for quality"—as is recorded—was restored abou years ago, when several Second-Pointed wind were inserted; but some objects of inte

* These were built in 1617 by Sir William Drake, Bart. Over the front door are the arms and crest of the family, with the following inscription:—"Sir William Drake, of Shardeloes, in ye County of Bucks, Knight and Baronet, in the year of our Lord 1617, to the Glory of God, and for the relief of Six Poor Widows well reputed in this Parrish, hath built Six Almshouses, with all conveniences to them, and a very good allowance for ever, at his own cost and charges."

† Notably that belonging to Mr. John Chase, the artistic and archæological contents of which, many of them collected by his late kinsman, the Venerable Archdeacon Freer, are full of interest and value. Books, pottery, enamels, pictures, and prints form a remarkable collection, of which, by their owner's favour, the present writer made a too-brief recent inspection.

* Geoffrey de Mandeville, whose chief mansion w Walden, in Essex, where he founded a monas married twice, and his son Geoffrey in turn ma Rohesia, daughter of Alberic and de Vere, Earl of Ox and was himself created Earl of Essex. The de Ma villes owned many houses and estates both in Bucks Oxon. Stoke Mandeville in the former county is na from them. They were likewise large benefactor religious houses, and the original founders of sever various shires. For a pedigree of the de Mandev who were also Lords of Rycott, in Oxon, see pp. 331- of my "History of the Prebendal Church of the B. of Thame."

† Mr. William Caveller.

‡ From the Domestic State Papers of Charles the F reign, the results of a formal visitation by Williams, Bi of Lincoln, A.D. 1637, are on record. As regards Amers the following is preserved:—"The wainscot round a the communion table to be made lower by 14 inches the kneeling benches to be made lower and broader. is Erasmus [i.e., his Commentaries.] To provide a chalice and two covers—one for that which is there the other for the new one. To have a convenient he There be two flaggons. North aisle wants pavi many of the seats in decay. The boards that are set the backs of the old seats to be taken down. Mr. Gr wife's seat—the boards to be taken off, and the door made even with the old seat. All the high seats taken down to the mark near the chancel—viz., four seats on the south side and Sir Thomas Sand's. The of the organ is in some place of the town."



re removed, destroyed, or lost, while recently interior has been effectually renewed and ll-repaired in general good taste and with at picturesqueness, and this within the last years. Possessing now no galleries, it can ily seat about 1,040 persons out of a present ulation of 3,000. It is held as a benefice h the adjacent hamlet of Coleshill, where re is a modern chapel-of-ease, under the care he Rector of Amersham.

ertain of its architectural features are worthy more particular notice.

he arches of the nave are graceful and well-portioned, while the roofs of nave, transepts, choir are not wanting in good effect. Some w windows, in excellent taste, have been erted in place of those decayed and dilapidated hat at the east end of the Drake mortuary ng of good design. New clerestory windows re been likewise put up; while outside, tead of a mean and debased battlemented sting of brick, a well-designed band of free-ne now crowns the walls of the nave.

he nave and chancel are somewhat narrow, the aisles are dark. The tower at the west is of excellent proportions, while the new ne turret at the top of the vice or staircase es greater external picturesqueness and effect t. The organ stands in the south chapel. e altar-table is fairly raised and furnished; the stone reredos is somewhat commonplace. e stalls are solid and good. There is an ex-ent vestry to the immediate north of the ke mortuary chapel, in which there are two iron-bound chests with several locks. Here re were anciently some fragments of ancient s—broken figures and quarries; but these e been lost or removed. Of two ancient rries, now in cottage windows, sketches are n.

he east window of the chancel, of five lights, filled with good old foreign stained glass—t probably of Flemish work. It stood ori-ally in a private chapel at Lamer, in Here-dshire—which belonged to the ancient family Garrard, a race allied to the Drakes—and tains dignified figures, well designed and very in colouring, of ten of the Apostles, all edingly effective.

here are several other modern windows, of ed merit, in stained glass, some of them dsome. Two of these, at least, contain too h dark-coloured glass, which, very unneces-ly and unwisely, tends to darken the sacred ding, for the clerestory windows of the nave o large a structure are proportionately small, do not let in too much light. Care should be riably taken to exclude the use of staring urs, dull backgrounds, and dark glass in ern windows.

There are several brasses* remaining of considerable interest. Most of them, however, have been moved, and some, to avoid their being trodden upon, are now placed on the walls. The earliest is that of Thomas Carbonell, Esq., and his wife Elizabeth, in a good state of preservation, though some of the letters of the inscription are lost.

There is another brass, of a bold and effective design, supposed to represent William Brudenell,† which formerly had shields charged with the arms of Brudenell impaling Raans in its upper part‡; and another of the same race—Henry Brudenell, Esq., and Alianora his wife, daughter of Hugh Preston, son of Sir Thomas Preston, Knt.

Another represents a very ancient race, who took their name from Penn, an adjacent village to the town—John de la Penne and Elizabeth his wife, daughter of Peter Hally. And another, John Drake, son of Francis Drake, of Esher in Surrey, by Katherine his wife, aged 4 years.

There can be little doubt that the present vault and mortuary chapel of the Drakes of Shardloes, on the north side of the chancel, stands on the site of the old de Mandeville burying-place, and possibly on that of the Brudenells likewise. In certain old deeds—of which I possess partial abstracts and some curious notes—the chantry of the Brudenells is expressly referred to, and it is implied that services for the repose of the souls of the dead were frequently said in the reign of Henry VII. The existing Drake vault is large and well arranged, while the capacious chapel over it—full of modern monuments in Sicilian marbles—is of fine proportions. From these and the ordinary family records an interesting and acceptable "History of the Family of Drake of Buckinghamshire" might be compiled, Dr. Lipscombe's account being very imperfect and inadequate. But the chapel wants a Communion-table, stalls, and other proper fittings, for at present it is an empty desolation, and is a contrast to such places as they were in the ages of faith.

The other monuments of varying sizes and characters are numerous, and some of them very handsome—especially those belonging to the Drakes in the chancel. These are in good order.

In the north transept there are several marble tablets commemorating members of the Weller family. Their residence is called "The Plantation"; while at the west end of the south aisle a large tablet to the memory of a member of the Bucks family of Ayres remains.

The late Mr. Preedy, a London architect, restored the interior of the church, about twenty years ago, and did his work conscientiously and effectively. The exterior has been quite recently carefully dealt with by Mr. J. S. Alder, who deserves commendation. Perhaps greater simplicity might have been aimed at in some details. Anyhow, the result is, on the whole, very creditable and picturesque. The accompanying sketch was made before the last and latest restoration.

* There is a careful and exact list, p. 19, with all the details of dress given in Haines's "Monumental Brasses" (London: 1861)—a volume of the highest merit and interest. This may be consulted by those who desire further information on the subject.

† Edmund Brudenell, of this family, Lord of Raans, who held that manor in 1469, had by his first wife a daughter Alice, who married Richard Waller, of Groombridge, in Kent. Possibly this alliance may have led to the Wallers settling in the parish of Amersham. The register of the Baptism of Edmund Waller, the celebrated poet, stands thus in the Amersham Register book:—"1605, March, Edmund Waller, son of Robert Waller, Esq., baptiz'd ye 9th." He was buried in Beaconsfield churchyard in the year 1687.

‡ An artist without a reasonable knowledge of heraldry and genealogy finds himself robbed of a science admirable in itself, full of collateral guides and aids, by which so much may be learned of history and so much more may be taught.

CHIPS.

Messrs. Gething and Grice, general stone merchants, have found their London, suburban, and country business extend so rapidly that they have, for the greater convenience of their customers, taken a railway wharf and offices, at Nos. 191 and 201, Warwick-road, Kensington (G.W.R. depôt), within five minutes of the Addison-road, Earl's Court, and West Kensington stations. They will open the wharf on September 21, as soon as the necessary alterations and erections are completed, as a general building and monumental stone depôt, and keep a large stock of block and slab stone used in the building and monumental trades—viz., Portland, Bath, hard York, Robin Hood, Howley Park, Newbiggin, Aspatria, Dumfries, Mansfield, Painswick, Hopton Wood, alabaster, and numerous other stones.

At Tuesday's meeting of the Town Council of Dudley, it was resolved to borrow £5,000 for the purchase of a recreation ground at Eve Hill (£300), another at the Buffery (£926), for the site of a fire station in Priory-street (£1,300), and the widening of Stone-street (£2,500).

It has been decided to close the old Court House Police-station in Glasgow, and plans were agreed upon on Friday for the erection of a new police-station in East Clyde-street. The new building will be constructed at a cost of from £3,000 to £10,000 and is to be three stories in height.

St, Nicholas Church, Liverpool, was reopened on Sunday after restoration and decoration carried out by Messrs. G. H. Morton and Sons, of that city.

The failure is announced from Bradford of Joseph Smith, land agent and surveyor, carrying on business with others under the name of Smith, Gothard, and Co. The liabilities are over £60,000, of which £48,000 are in connection with land speculations at Ilkley, carried on by the Victoria Land Company, most of which is secured. The estate is expected to realise 10s. in the pound.

WAYSIDE NOTES.

APOSTLES of handicraftsmanship who wage relentless war against all manner of machine work will have been stirred to unwonted depths by the announcement of the "Universal Wood-Carving Machine Company, Limited." This concern, which has been, or is to be, launched with a capital of £80,000, is promoted to purchase the English and foreign patent rights of a machine which "will execute with great speed and accuracy reproductions of carved panels, &c., of the finest workmanship, at about one-tenth the cost of hand-carved work." So here we have another step in the wrong direction, from a true artistic point of view, howsoever beneficial and useful the machine may seem to furniture manufacturers and others. Machine-made joinery was considered a "come-down" in its day; but here we are to have wood cut and carved in divers ornamental patterns by certain ingenious pieces of mechanism, operated by boys at "four dollars to six dollars per week," with one man in charge to look after the machines, keep the tools sharp, and lay out the work for the boys! No need to go without wood-carving in the home in the future. And perhaps the Company in arguing that the public, if able to purchase furniture, &c., "with handsome covered decorations" at only a slightly increased price as compared with similar articles in plain wood, "will naturally choose the former," are correct in their surmises, much as we may regret the time and manners that permit the choice. In view, however, of machine carvings on furniture, the small minority will more than ever stick to the neat plainness and decent comeliness of uncarved wood.

Manufacturers intending to send out goods to the Chicago Exhibition will be interested to know that a member of the British Legation at Washington has been making personal inquiries at Chicago as to what department among the industrial arts will have most chances of success. As a result, he believes that fine porcelain, the higher class of ornamental furniture, cut glass, tiles, jewelry, gold and silver work, and fine arts in metals, tapestries, and decorative stuffs, mosaics, and stamped leather will find the readiest sale.

The outcome of the offer of General Pitt-Rivers to purchase Old Sarum from the Dean and Chapter of Salisbury, is that the Dean and Chapter have resolved to maintain possession of the place, while taking measures to place it under the Act for the Preservation of Ancient Monuments. I do not know whether General Pitt-Rivers was acting officially in making the offer, but take it that he was, and that had the dean and chapter, with the concurrence of the corporation of Salisbury, agreed to the offer, the site of Old Sarum would have been the scene of archæological explorations, which, from the nature of the place, would have been calculated to afford many very interesting discoveries of remains of antiquities and indications of old buildings. It is said that the question of the sale of the site of the old city aroused much public interest with lengthy *pro* and *con.* discussions. Judging by the result, the *cons.* prevailed, and I, for one, am glad. It is not every site of antiquity that we would wish to be ransacked. Let the old bones and stones rest in peace, and the halo of pleasing mystery and imagination—quickly dispelled by matter-of-fact research—hang over the place for ever.

Carlsbad, judging from the description of a writer in the *St. James's Gazette*, is in quite the same way as the Rhineland of the *Saturday Review*. Speaking of the association of Goethe with Carlsbad, and of the erstwhile limpid clearness of the Tepl stream, the writer says that in those days "the wanderer by the banks of the stream may never have had to hold his nose lest the smell should sicken him: at present the odour unpleasantly resembles that at Barking Creek, where the sewage of London makes its presence painfully felt. In Goethe's day the coal of Bohemia lay undisturbed beneath the surface of the ground, and wood was used for cooking and heating. That coal is now burned as fuel, and gives off dense smoke in the process, and the air of Carlsbad is not purer than the waters of the Tepl." The insanitary condition of this Bohemian bathing resort is pointed out, showing that, when we are fairly sanitated-up in this country, there will yet be other worlds for sanitarians to conquer. Carlsbad is determined to be up-to-date in the matter of illuminations, having recently introduced the electric light in the streets; but some matters concerning drainage appear to be in an inferior condition to what one might reasonably expect at an extensive resort of wealthy persons, expectant of relief from manifold diseases.

Even architects should not essay difficult mountaineering without responsible guides. Herr Glückel, an architect of Vienna, who was taking a tour in the Austrian Alps, and is known to have ascended the Hoch König, near Bischofshofen, without a guide, has been missing since August 19. We shall all hope that Herr Glückel has come to no harm; but the length of time that has elapsed since the 19th of last month is by no means reassuring where mountaineering is concerned.

Architect readers will have observed your note last week respecting the proposed, or possibly inaugurated, limited liability company for "architecting," surveying, engineering, and auctioneering. I cannot prognosticate a very rosy look-out for shareholders in the concern. The promoters should have thrown in a few other businesses—say the law and medicine—and opened a cheesmonger's department for the convenience of customers. Then when architecture was flat, and nothing "moving" in the surveying and engineering way, while no one wanted to sell off their goods and chattels, there might yet be a prime market for cheese and dairy produce. When about to venture in a new line, there is nothing like "going the whole hog," which reminds me, again, that pork and bacon would go well with the cheese, and give a generally bristling—if not brisk—air to the whole concern.

The time for sending in designs for the Bath competition has been extended, though by a very few days when compared with the misguided liberality of many competition promoters. Judging by the nature of the second advertisement emanating from the Guildhall, at Bath, there are plenty of competitors for the work of making additions to the new town hall.

The restoration of the parish church of Burnham Thorpe, Norfolk, suggested, as will be remembered, by the Prince of Wales, is not the only work to be done at Burnham to commemorate the birthplace of Nelson. The memorial scheme includes a public hall, and a foundation-stone of this building was laid by the Countess of Leicester on Monday afternoon. Besides the Prince, the Queen, the Duke of Edinburgh, and the Duke of Cambridge have been contributors to the fund. The cost of the church restorations will be £10,000.

What right has an architect who restores an old church to put his name to representations of the building as "architect" of the same? I never could see much, morally or otherwise. It may be a more excusable sin when the restoration embraces some radical alteration to the church, in which case, however, the work is not one of restoration, and, therefore, the point at issue does not affect such buildings and their architects; but it is no uncommon thing to see, say, in the Royal Academy exhibition, a drawing of an old church whereunto some architect has tacked a down-pipe, or wherein he has put in about three and a half new stones, thereby spoiling the whole internal effect; or laid down a few square yards of glaring encaustic tiling; and whereunto he has thought fit to append his name—as "architect," forsooth!—of the building. The public must often be misled, even if the profession knows very well that such a one is no more the architect of the building than "the man in the moon." It would be more open and honest to say "Restored by Messrs. Vandal," or "Architect to the restorations, Mr. Iconoclast"—or whoever the restorers may have been. To append one's name as architect simply is to deceive the unwary. In reality, those restoring old buildings are rather *surveyors*, as the architect who looks after repairs and restorations to our Metropolitan basilica is called the "Surveyor to St. Paul's Cathedral." This is no sudden fancy on my part, but a view I have held for years, and been frequently tempted to put forward herein. the cap fits anywhere—as it might well do innumerable directions—may it be recognise and an alteration in custom betoken a growi candour on the part of a certain section of t profession.

A correspondent sends me a leaf from t *Commercial Compendium* of Aug. 26, in whic among the extracts from the Registry of Dee of Arrangement I note the following:—

Knowles, Eli, 3, Palatine-buildings, Glebe-street, Gr Harwood, architect, tobacconist, and chipped pot dealer. Assignment. Trustee, John R. Ecroyd, Accrin ton, accountant. Date, Aug. 17th; filed, 24th; liabilit secured and partly secured, £479 5s.; unsecur £216 12s. 1d.; property after deducting claims, £69 8s.

I wonder whether Eli came to grief on arch tecture, tobacco, or chipped potatoes? I ho he will start again soon, and with better luc This is a case no doubt in which the comi examination for the F.R.I.B.A. might be di pensed with. The Institute hates Registratio and if anything but Registration will meet su instances as this, I should be glad to hear wh it is. If only Eli had entertained the A. instead of the gentleman with the uncook lettuces!

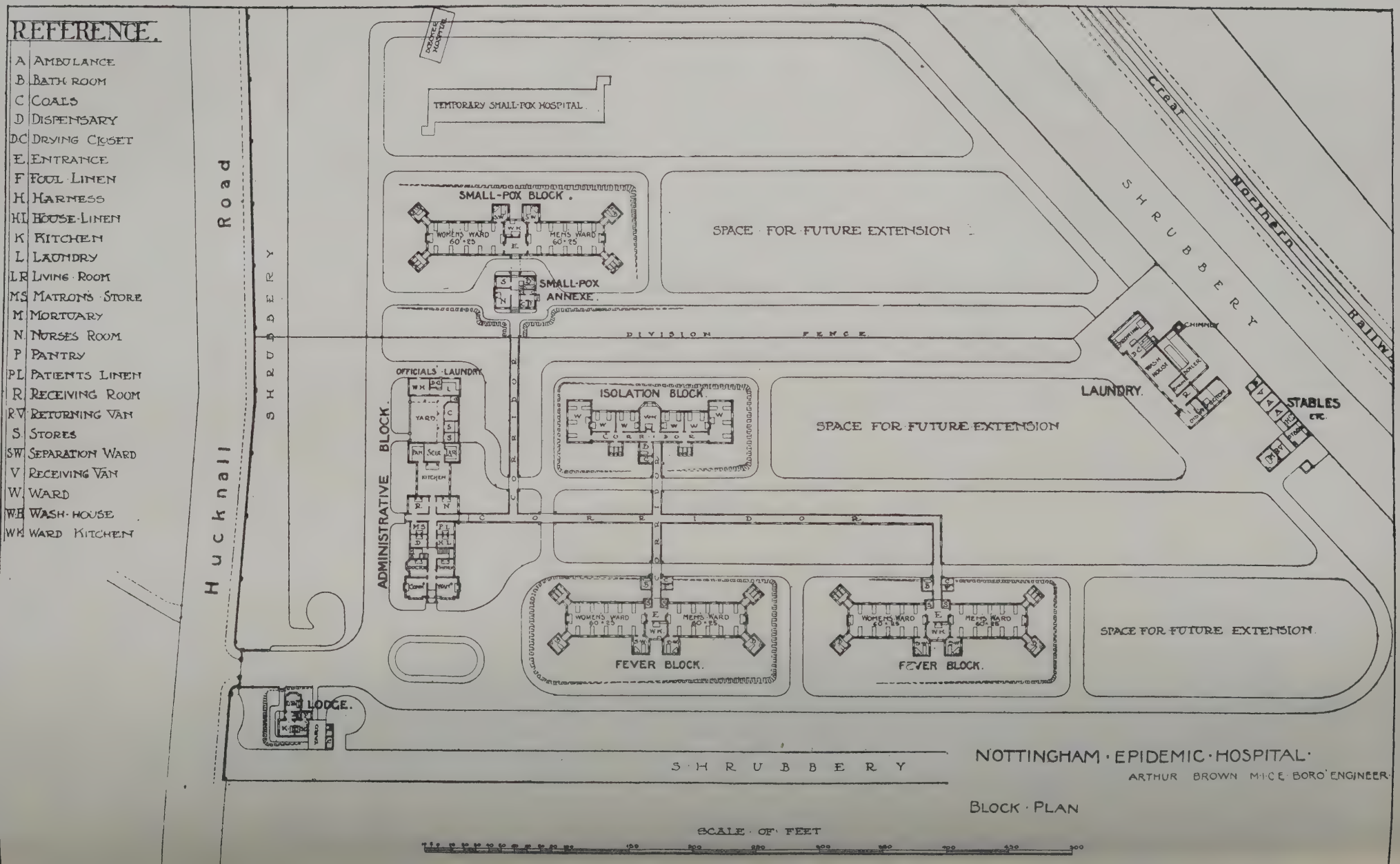
GOTH.

GEOMETRICAL ENCAUSTIC AND MOSAIC TILES.

A VERY handsomely illustrated catalogue designs has been brought out by Mess Carter and Co., of Poole, Dorset, who receiv the Prize Medal and Star certificate awarded the Society of Architects for superiority of wor manship and material. The plain floor ti made in various colours, shapes, and sizes, are a very excellent manufacture, and the desig are noticeable for their nice arrangements a harmonious blendings. Plate 1 shows some e ceedingly good patterns for vestibules, corrido halls, verandahs, and other purposes, at abo 5s. 6d. per square yard, centre and borde The grey, dark chocolate, red, and buff are t chief colours, and these, by different arrang ments and proportions of the buff, produ several degrees of light and darkness, the t extremes being red and black, and red and bu disposed diagonally. In plan 2, several n combinations and richer effects are seen. Desig 5720, 5780, 5800, 5700, and 5750, plan and No. 5540, 5560, and 5550, plan 5, very pleasing and harmonious arrangemen For chancel and sacrarium pavings, seve appropriate designs are to be found, and for th and rural decoration, and reredos work, we m commend the patterns on plate 9. For gla hearths, plates 10 and 11 may be consulted fo variety of plain glazed and embossed heart Several very rich effects are produced by a co bination of embossed, hand-painted, and gla tiles. The panelled patterns are very handson Several arrangements are shown for slabb hearths and cheeks, composed of rich-colou enamelled tiles, the latter being in one pi about 1½in. thick. Plate 13 shows seve patterns of delicate-tinted wall tiles and da borders and fittings. The Keramic-mosaic p terns, Plate 8, are very chaste and in refi colourings. Various other kinds of tiles—u glazed, printed, picturesque, mosaic, terraco tiles, and mouldings—are illustrated, and prices are affixed to every pattern, each of wh has a number for reference. Important dir tions as to cleaning and ordering are given. recommend Messrs. Carter and Co.'s new book designs to the notice of every architect bef specifying tile-work.

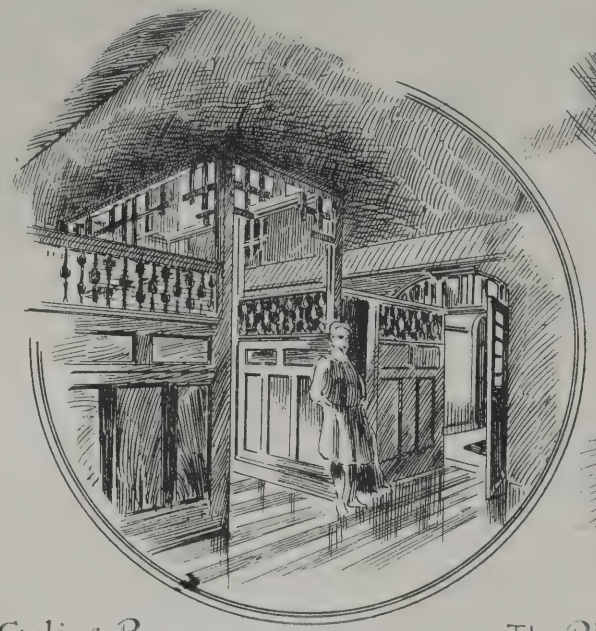
The new schools, Loanhead, are being warm and ventilated by means of Shorland's patent Ma chester grates, the same being supplied by E. H. Shorland, of Manchester.

The block of premises at the corner of Lo Causeway and Westgate, Peterborough, is be rebuilt for Alderman Barrett, of that city, who previously reconstructed the premises on the oppo side of Long Causeway. The new premises, wh will be let off as shops, occupy an area of 83ft. 41ft., and will be four stories in height. external walls above the ground floor are fa with dark-red brick, from Rowlands Castle bri yards, Hampshire, and stone dressings are fre introduced, to suit the style, which is an adap tion of Elizabethan. The works are being carr out by Mr. Gray, contractor, of Westwood-ro from the designs of Mr. H. M. Townsend, also Peterborough.


REFERENCE.
A AMBULANCE
B BATH ROOM
C COALS
D DISPENSARY
DC DRYING CLOSET
E ENTRANCE
F FOUL LINEN
H HARNESS
HL HOUSE-LINEN
K KITCHEN
L LAUNDRY
LR LIVING ROOM
MS MATRONS STORE
M MORTUARY
N NURSES ROOM
P PANTRY
PL PATIENTS LINEN
R RECEIVING ROOM
RV RETURNING VAN
S STORES
SW SEPARATION WARD
V RECEIVING VAN
W WARD
WH WASH-HOUSE
WK WARD KITCHEN
Huckna
Road
SHRUBBERY
DISTRICT HOSPITAL
TEMPORARY SMALL-POX HOSPITAL
SMALL-POX BLOCK.
WOMENS WARD 60'-25
MENS WARD 60'-25
SMALL-POX ANNEXE.
SPACE FOR FUTURE EXTENSION
Great Northern Railway
SHRUBBERY
DIVISION FENCE
OFFICIALS' LAUNDRY
ADMINISTRATIVE BLOCK.
ISOLATION BLOCK.
CORRIDOR
LAUNDRY.
CHIMNEY
STABLES ETC.
SPACE FOR FUTURE EXTENSION
CORRIDOR
FEVER BLOCK.
FEVER BLOCK.
SPACE FOR FUTURE EXTENSION.
LODGE.
SHRUBBERY
NOTTINGHAM · EPIDEMIC · HOSPITAL.
ARTHUR BROWN M.I.C.E. BORO' ENGINEER.
BLOCK · PLAN
SCALE OF FEET

NEW TURKISH AND HYDROPATHIC BATHS GRIMSBY

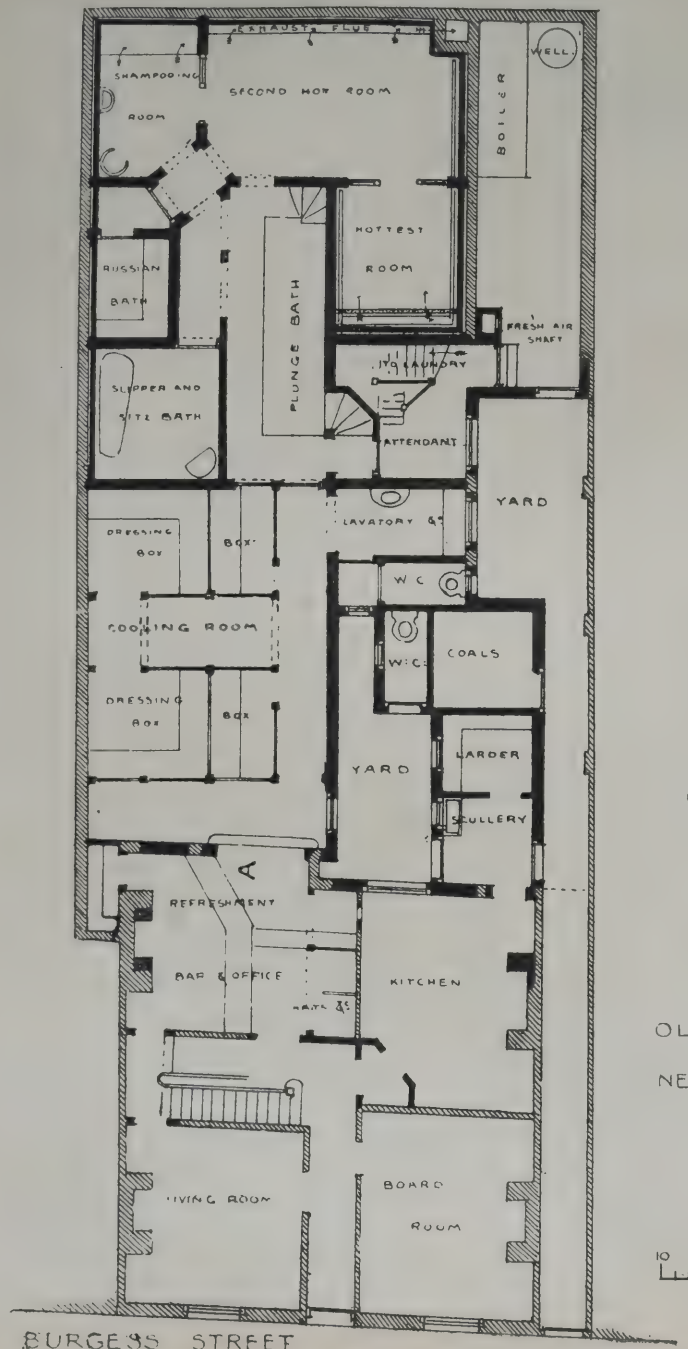
FOR THE GRIMSBY TURKISH AND RUSSIAN BATHS Co. LIMITED

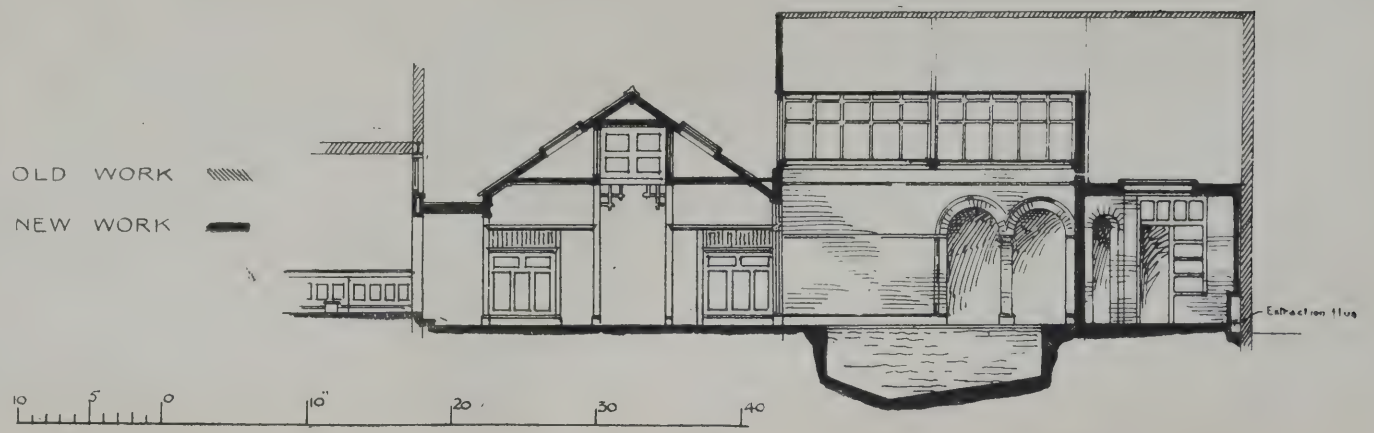


The Cooling Room.



The Plunge Bath





SECTION A B

JOHN J. CRESSWELL ARCHT

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ILLUSTRATIONS.

LECTED DESIGN FOR NEW MARKET AND ABATTOIR AT BURY.—DETAILS OF CHOIR STALLS IN ST. PAUL'S CATHEDRAL.—DETAILS OF A PORTION OF THE PRINCIPAL FRONT OF MR. ASTON WEBB'S SELECTED DESIGN FOR THE NEW SOUTH KENSINGTON MUSEUM BUILDINGS.—INTERIOR OF MR. T. G. JACKSON'S DESIGN FOR THE NEW SOUTH KENSINGTON MUSEUM BUILDINGS.—NEW TURKISH AND HYDROPATHIC BATHS AT GRIMSBY.—NEW EPIDEMIC HOSPITAL AT NOTTINGHAM.

Our Illustrations.

IE SELECTED DESIGN FOR THE PROPOSED NEW MARKETS AND ABATTOIRS AT BURY.

HIS design was submitted in competition under ıe motto "Northern Light" by Mr. Archiald Neill, architect, of 18, East Parade, Leeds, ho thus describes the buildings which are) be erected at the junction of Knowsley-reet and Moss-lane, and next the Lanıshire and Yorkshire Railway siding adjacent. he chief points arrived at in the preparaion of these designs have been as follows:—irstly, to adhere strictly to the "Instrucions" and particulars contained in the papers upplied to competitors; secondly, to provide uch general and detailed accommodation as a nowledge of local customs and requirements eem to dictate, modified and amplified only to uch an extent as the rapidly increasing deıands of the town appear to warrant; thirdly, o so plan and arrange all the internal accomnodation as shall insure the maximum revenue s far as consistent with perfectly convenient nd satisfactory working, and, further, render uture additions and extensions easy without emoving or in any way interfering with existng work; and, fourthly and lastly, to produce uch an external and internal architectural apearance as may serve to at once indicate the ıses to which the buildings are to be devoted, nd of a sufficiently imposing and important haracter for the position which has been fixed pon for their erection. In planning, a leading uestion was whether to arrange residences over hops or not, and after full consideration it was ecided that the importance of the Moss-lane rontage warrants the provision of show rooms; herefore, especially considering the encroachment on market area by the open yards which would be necessary for dwellings, it was decided o place show rooms and assistants' rooms only ver these shops. Twenty lock-up butchers' talls or shops around the area of general market, ach shop furnished with the usual 32-in. tall-board, counter, and block, three-tier rails nd hangers, ventilating gratings throughout; ined to a height of five feet with enamelled bricks and salt-glazed above. The stalls are of he double range and passage type, as being very onvenient for serving and preventing confuion, and now very generally adopted in our better-class English and Welsh markets—a proportion to be eventually ascertained should be framed with inclosures beneath, and in a few instances with back tiers. A small number of lock-up stalls are shown in tolerably central position for the sale of books, clothing, cloth, dry goods, &c., and in these buildings suggest them as being important, but if not desired, no interference with general design would be requisite by their omission. Wholesale pitches or spaces for disposal of vegetables, fruit, &c., by auction have been provided in central position; but when market is extended a roadway for carts should be made next the wholesale fish market, so that heavy loads may be brought direct to a central position, and thus avoid the confusion and interference caused by much trolly work. A limited space only is proposed for the wholesale meat sub-department, as from inquiry such will be sufficient, but further accommodation may easily be gained by fixing extra three-tier rails and hangers. An imposing but economical domed entrance is a feature of the building. Fruit, flowers, sweets, and toys can be retailed in this locality, and a gallery is suggested around it for the sale of plants and seeds. The fish markets have an entrance from the roadway for convenience in unloading; the wholesale department marked by rubbed slate lines in the floor to define the extent of "pitches." An ice-well of sufficient size to enable a stock to be taken enough to supply butchers and other tradesmen is provided. The retail portion should have divided stalls running at either side with light braced iron inclosures. Sloping rubbed slate slabs will be provided where necessary on glazed brick walls, with live fish tanks below in sundry instances. A fountain and clock are placed in a central position. Lavatories and water-closets are shown on right and left of chief entrance for men and women respectively, and with open areas, as in practice perfect ventilation of these offices is extremely difficult with any sort of roof or covering. A tolerably convenient position is accorded to furnace and hot-water apparatus in a corner of site in the basement. To mark and distinguish the building at a distance an increased altitude of some feature is a good point, and as a reliable source of water is only to be obtained by having a capacious tank, a suitable tower has been shown to serve the double purpose. From this tank a system of fire hydrants would be supplied, with hose and unions near all entrances and in convenient positions at sides of the chief avenues. The great points to be attended to in planning the abattoirs were to afford ample space and perfect ventilation throughout, around, and above all parts. Advantage has been taken of the form of ground to adopt the principle of open areas between lairs and slaughter houses, and wide verandah-sheltered avenues between the latter and the meat stores. The yards and sheds are arranged with open area between, and at the rear suggest the usual driving way, with gates so arranged as to serve the double purpose of inclosures and guides to turn cattle into lairs. In sheltered position at rear of buildings are placed the yards with drinking troughs and sheds for sheltering the stock. The condemned slaughter house and lair are placed in an isolated position separate from general buildings. The meat store is placed midway between the two ranges of slaughter houses and running the entire length of them, and this arrangement affords very uncommon facilities for equal extensions of the various branches of the building. At the head of this store will be arranged a small office for the weighing and entering clerk, also platform weighing machine and outside wide shelter for waggons or carts, with weigh bridge, fitted with register inside office. A very extensive area is required for hides and skins for sorting and parcelling, and as the conformation of site most happily favours the idea, a range of buildings is planned 18ft. high for this purpose in the basement, with large arched openings to the entire extent, glazed with louvre lights only, and with recessed loading way so as not to encroach upon general traffic space. Suitable drawing-off, storing, and drying room can be well arranged adjacent to meet requirements of blood department if required. Extensive boiler house is provided, so as to afford room for gas engine to work cranes if necessary. All external walls of market buildings will be of hand-pressed brick, all dressings of good quality ashlar from the district quarries, and all interior faces of hand-pressed brick with salt-glazed dado 5ft. high. The butchers' stall should have a 5ft. dado of enamelled brick with tinted skirting and capping and salt-glazed brickwork above. The whole of the walls of abattoir buildings to be of salt-glazed brickwork to a height of 5ft. (above that height in pressed brick), and all interior faces of meat store, store, and slaughter houses be faced to a height of 5ft. with enamelled bricks, above that level with salt-glazed bricks, and the interiors of lairs lined with salt-glazed bricks. The inclined approaches, avenues, and passage ways will be of stone setts on well-pounded hard-core foundations well grouted with cement. The floors of lairs should be of cement concrete. The floors of slaughter houses would advantageously be faced with large size cleansed Yorkshire flags, and all floors laid to centre or side open-air channelling. The floors of markets generally should be of Yorkshire tooled flagging on concrete. The floors of butchers' stalls of cement on concrete bed, with stone steps. The floors of lock-up stalls of wood with stone steps. All mineral floors to be laid to gentle gradients to facilitate cleansing, and sinks provided where necessary. Each slaughter house to have stop cock for hose attachment for cleansing purposes. The roofs of markets and abattoirs to be of iron, as being now almost universally used in preference to all other materials, covered with one-inch wrought tongued and beaded boarding on longitudinal spars, the exteriors being of slate on Croggon's felt and battens to 3-inch gauge. The whole of glazed portions to be of $\frac{1}{4}$-inch rough-cast plate glass. The following is the estimate of cost: The markets, including all walls, roofs, turrets, towers, chimney stacks, and other special features, 395,980 cubic feet, at 6d. per foot, £9,899 10s.; the abattoirs, ditto, ditto, &c., including earthworks, 549,600 cubic feet, at 6d. per foot, £13,740—total, £23,639 10s. We give a plan of the markets and a general view from the competition drawings.

CHOIR STALLS, SCREEN, ETC., ST. PAUL'S CATHEDRAL.

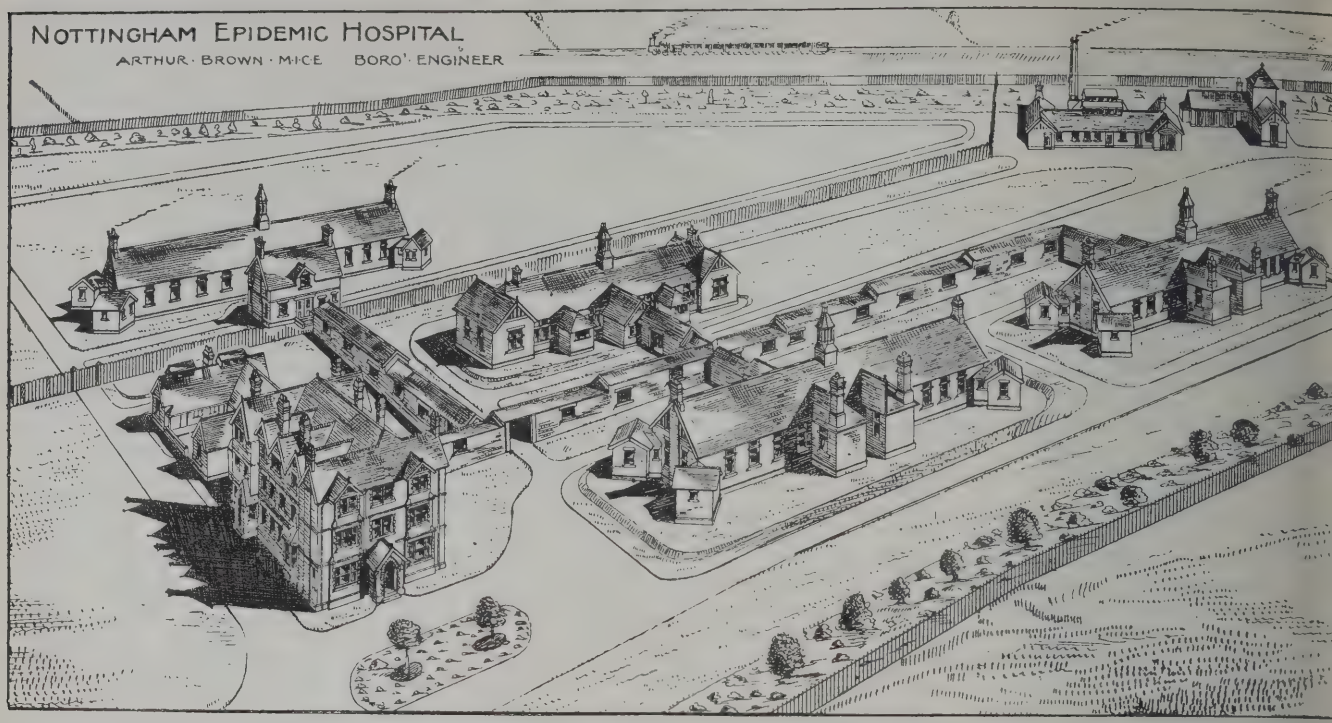
THE general scale drawings of this Royal Academy silver medal set of details, by Mr. Charles W. Baker, were published in the BUILDING NEWS for July 24th last, when we gave the author's description of the screen and choir-stalls in our great Metropolitan Cathedral. We now give a double-page plate of mouldings, carvings, and other enlarged parts, which cannot fail to be of practical utility to all engaged in the execution or design of high-class woodwork and joinery.

SOUTH KENSINGTON MUSEUM COMPETITION.

THE detail of Mr. Aston Webb's selected design for this national work, which we publish to-day, shows clearly enough the rich and in many ways original character of the ornament and minor parts which he has introduced into his fine composition, and which will contrast well with its great neighbour, the Natural History Museum. The materials to be used in the selected design are red brick and buff terracotta, to correspond with the existing portions of the Museum. Good lighting being of the first importance, the windows are designed wide and high, and the piers reduced to a minimum on the face, strength being given by the depth of the reveals and by the plain brick piers of the pavilion blocks. A round arched construction has been adopted with a delicate scheme or ornament, in which figure-work and sculptural decoration, indicative of the uses of the building, will form a principal feature, as will be found to some extent indicated on the detail drawing. The interior perspective illustrates Mr. T. G. Jackson's central court. His plans were given with the exterior last week.

GRIMSBY TURKISH BATHS.

THESE baths have been designed to afford in small and manageable compass the usual Turkish bath treatment as well as certain of the simpler forms of hydropathic treatment. The buildings are old ones adapted and altered for the purpose, as shown on the plan. An ordinary dwelling house on the street will serve as attendants' house, office, and board-room, as well as affording accommodation if required for resident patients. A large shed at the back has been fitted up with the various bathing apartments, all of which are lined with glazed brick, the cooling room forming the connection between the two blocks. A four-horse power boiler pumps the necessary water from a well on the premises, supplies steam to the vapour baths, and heats the water, as well as driving the laundry machinery (a department to be hereafter possibly extended), and by means of steam pipes heating the various hot rooms. In the



Turkish bath the fresh air drawn above the roof is led over a series of hot cylinders, and after circulating through the various apartments is drawn off at the floor level and discharged into the engine flue. All fumes of gas burners will be drawn off direct from the burners without in any degree mixing with the air. Direct radiation from heated steam-pipes will also assist the effect of the heated air. Messrs. Hewins and Goodhand, of Grimsby, are the builders. The whole of the building and heating arrangements have been designed by the architect to the company, Mr. John J. Cresswell, of Grimsby. The engineering work and heating have been undertaken by the Great Grimsby Co-operative Box and Fish Carrying Company, Limited.

NEW EPIDEMIC HOSPITAL, NOTTINGHAM.

This hospital was opened on the 15th of July. The buildings occupy a site of about 12 acres. At present, accommodation has been provided for 82 patients, but the administrative block, laundry block, and stabling are sufficiently large to allow for a large increase in the number of beds. The 82 beds are contained in four blocks, namely, two fever blocks containing 22 beds each; one small-pox block also containing 22 beds, and one isolation block containing 16 beds. The two blocks for fever and the one for small-pox patients are almost identical in plan and construction, and each consists of an entrance hall giving access to a ward kitchen, and two large wards, each 60ft. long, 25ft. wide, and 13ft. 6in. high, and each designed to accommodate 10 beds; there is also a small room attached to each large ward containing one bed, which may be used for any patient requiring special attention or isolation. The bath rooms and water-closets, &c., are contained in annexes divided from the large wards by short passages, having through ventilation; and a bathroom, coal place, foul-linen place, and stores are provided adjoining the entrance to each block. The isolation block consists of two wards, each accommodating four patients, and four wards containing two beds each, with the necessary bath rooms, stores, water-closets, &c. The small-pox block is divided from the remainder of the buildings by a fence 6ft. high, and an annexe has been built in connection with it to provide both day and night accommodation for the nurses attending small-pox cases, so that they need not visit the administrative block or have any intercourse with nurses attending other cases. The blocks are built on an impervious layer of cement concrete, and the walls are faced on the inside with coloured glazed bricks to a height of 5ft. above the floor, and above that are plastered in Parian cement. Each of the large wards is warmed by two steam radiators and two of Shorland's Manchester grates, and the ventilation has been carefully arranged; each fireplace and radiator has a fresh air supply direct from the outside, and delivers fresh warm air into the room, and there are fresh-air inlets under each bed. The smoke flues from the ward kitchen and from the ward fireplaces adjoining same are of iron, and are carried up in the centre of a ventilating tower 50ft. high, and have been arranged so that the heat radiated from the smoke flues assists the ventilation. In the ceiling of each ward are outlet gratings connected with tanks or channels carried above the ceiling and delivering into the ventilation tower, in which are placed two large Bunsen atmospheric burners to assist the up-draught. The wards are lighted by Wenham lamps, and the products of combustion are conducted to the ventilation tower in tubes carried in the centre of ventilation tanks. The administrative block is three stories in height, and contains on the ground floor waiting room and committee room, residence for medical officer, dispensary, matron's rooms and stores, kitchen, outbuildings, and the laundry for officials; upstairs there are altogether 18 bedrooms, with bathrooms and other conveniences. The laundry block is situated at the northern end of the site, and contains disinfector, boiler and engine house, laundry, drying room and ironing room. The stable block contains, besides stabling for two horses, the carriage houses for two ambulances and for vans for infected and disinfected goods. This block contains also the mortuary. At the entrance to the grounds is a lodge for the caretaker, and the grounds are inclosed where they abut upon the main road by a wall 7ft. high, and on the other three sides by iron hurdle fencing. The buildings are plainly built of brickwork with Hollington stone dressings, and the roofs are all covered with tiles. The administrative block is connected with the fever and other blocks by a corridor which is lined with a dado of glazed bricks; under this corridor is a brick subway divided into two chambers: in one are laid the gas and water pipes, and in the other the steam pipes, all easily accessible. The steam heating is on the low-pressure principle, and the steam required for heating the blocks, the two laundries, and cooking is provided by a boiler. The steam is conducted from the boiler house in the subway referred to, and is reduced by reducing valves to about 7lb. pressure before it passes through any of the radiators or is used for laundry or cooking purposes; the maximum distance to which steam is carried is about 250 yards. All the steam pipes are coated with non-conducting composition. The buildings have been designed by and carried out under the direction of Mr. Arthur Brown, M.Inst.C.E., borough engineer, assisted by Mr. F. B. Lewis, A.R.I.B.A., Assoc.Mem.Inst.C.E., the assistant engineer; Mr. E. Jones was the clerk of works. The total cost of the buildings, exclusive of l about £25,000. The contractors for the ings were Messrs. Wheatley and Maule, o tingham. The whole of the closets, slop and sanitary appliances are by Mr. Georg nings of London.

CHIPS.

Mr. George Tuttell, architectural sculpt Wharf-road, Grantham, died on Thursda week from the bursting of a blood vessel brain. The deceased gentleman had an apo fit on the previous day.

Thomas Hutton, road surveyor to the Eccl local board, appeared at the West Riding court at Bradford, on the 3rd inst., on a ch defacing voting papers relating to the elec members of the local board, and was fined costs, with the alternative of one month prisonment.

A warm correspondence has taken place be the commissioners of Motherwell, N.B., a Auldjo Jamieson, the Duke of Hamilton's missioner, anent the undermining of the town- that burgh, a building recently erected at a £6,000. In reply to a complaint, Mr. Ja demanded the sum of £1,884 10s. 3d., inc present payment of £500, for unworked mi underneath the town-hall; and, further, he that the Duke of Hamilton and his mineral t would not be liable for any damage that ha done, or may be done, by the working minerals adjacent to the building unpurcha the commissioners! The clerk has been inst to reply that the commissioners could not the terms offered, and, further, that they surprised and disappointed at the turn the had taken.

The proposal to place the Manchester me statue of John Bright on the Infirmary esp has been abandoned by the corporation of tha on the ground that the face would have a no aspect and could not be properly seen. It ha been decided to erect it on the Princess-stre of Albert-square, and to remove Bishop F statue to the opposite side, so as to face it.

Mr. C. C. Smith, until recently surveyor Skipton rural sanitary authority, and also Silsden urban sanitary authority, but at p town surveyor to the Dalton local board, w recipient on Saturday last of a very han massive timepiece, as a mark of esteem an token in appreciation of the conscientious disc of duties during the five years of connection the sanitary authorities named.

Noseley Hall, Leicestershire, the property Arthur Hazlerigg, Bart, and of great hist interest (having been used by Oliver Cromw his head-quarters in Leicestershire, from place he set out to destroy Ashby Castle), i undergoing extensive alterations and improve from the designs of Mr. J. Macvicar And President of the R.I.B.A. The builders are M Treasure and Son, of Shrewsbury and Londo

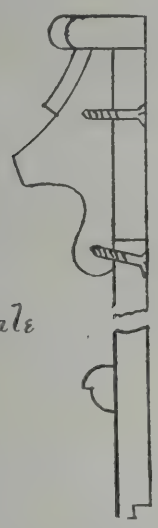
CARPENTRY AND JOINERY.—XL.

ENTABLATURES AND PEDIMENTS.

WE now come to a feature in door-case finishing which occurs only in buildings a semi-public or public character, or in the ate apartments and halls of mansions.

The simplest form of entablature is sometimes rmed an *overdoor*, and this name seems to be itable enough, as in furniture we have *over-antel*—both names serving at once to point out

Fig. 269.

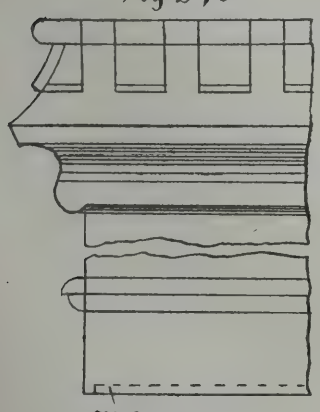


e locality where the objects so termed are uated.

Fig. 269 gives an outline of an overdoor of a mple kind taken from a college. The usual le in connection with the measurement for ese is to have the *fascia* in line with the archi-ave plate; but this will not serve as a universal le, even in the case of finishing with archi-aves, as should there occur a somewhat pro-cting capping to the architrave, the overdoor ould be *sunk*-looking, and therefore the circum-ances surrounding the case must often help to decision. But the above rule is generally pplicable.

It also applies in the case of a door trimmed ith pilasters, as the overdoor in that case would ave its *fascia* in line with the front of the llaster-plate, irrespective of the mouldings itred round to form the cap, or in the case of carved cap the rule would obtain, unless the

Fig 270



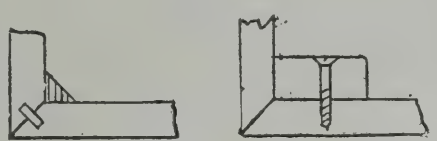
arving of the cap had a very great projection, hen it might be considered advisable to have a rojecting *break* over each cap, and the remainder f the fascia or frieze having the ordinary pro-ection, according to rule; which breaks would ive the finishing a bolder and more prominent ppearance. This rule also determines the length f the overdoor, as the *return fascia* shows the ame margin from the architraves at the ends as n front. It is hardly necessary to give the plan f the overdoor, but a front view is shown in ig. 270, in order to give a better understanding of the dentils, which are formed of pieces accurately fitting the concave surface of the upper portion of the cornice moulding adjacent to the bead, or rounded projecting edge of the top *member* of the cornice.

The dentilling is parallel in thickness, and is glued to, having been cut into lengths, and having had the end grain neatly planed, so as to show a finished appearance when varnished.

It may be well to state that the overdoor, which is being described, was of pitch pine, and, as stated above, varnished. As to the method of *getting up* this overdoor. The explanation will serve for all such finishing, as far as the ground it covers, although it will be necessary to add a little for additional features. A plain board of the required length, width, and thickness is obtained and prepared. Usually, when the wood is valuable, the portion covered by the cornice moulding is of a cheaper class, yellow pine being often substituted. A joint is shown in Fig. 269, a little above the bottom edge of the cornice moulding, which is intended to illustrate the jointing of the yellow pine to the pitch pine. The exact length being known, as per rule given above, the ends are *returned*, and be it understood that the best *return* is the piece at each end—that is, the piece for the fascia should be of the length to make the front and two return ends.

Fig. 271 shows two methods of returning the ends. That on the left hand shows the mitre grooved, and a cross tongue fitted and glued in. The grooving can be done with a *stiff* saw at the circular-saw bench, the mitre sliding on the table, and its sharp outer edge passing along the fence to give the distance. This process to be carefully and accurately done, and more especially, as might sometimes be the case, if the fascia is veneered. A block may be glued in the angle if it would not interfere with any arrangement for fixing; but it is seldom that so much projection is given to the fascia as to make this necessary. It is presumed

Fig. 271.



the piece for the fascia has been thicknessed; in a machine shop this would be case, and otherwise, if not thicknessed throughout, it should be at the ends to suit the returns. The second method, shown on the right-hand side, is by gluing and screwing on a piece so as just to glue the return piece against; the gluing of the edge of this piece and the mitre will serve to hold the returns, provided the wood is dry. It will be noticed that this piece screwed at the back serves to keep the fascia from warping (twisting), and if the return piece is sufficiently long, screws may be inserted into it through this angle piece, and this will serve to bind all very strongly together. When the glue has had sufficient time to harden, the fascia should be thoroughly cleaned up so as to require only a final touch when the mouldings are glued to it.

Be particularly careful to have the mitre joint showing exactly down the angle, as any defect in that position would show badly. The cornice moulding having been got ready, is now to be mitred; and to do this, a box in which to cut it is required, and of a particular size. This rule will apply for every such moulding, viz., to have the box so that the moulding will be jammed in it in the identical position which it is to occupy when fixed.

Fig. 272 shows what is meant.

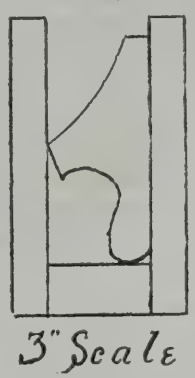
Now, it will be obvious that when the *mitre-cut* is made with the moulding in the position it is to occupy, all that is required is to take a shaving off with the *mitre-plane*, and when the saw-marks are taken off the mitre thus cut, it should make an excellent joint, and will if the work has been accurately done. The *cutting-block* was shown and described in connection with Fig. 113 of this series, and as it is familiar to every joiner, it is not necessary to describe it again; but as this is a special arrangement as regards the size, this has been dealt with.

Fig. 273 gives another end view of a cutting-block with a somewhat common section of a moulding lying in it, and the beauty and utility of the operation are seen with this moulding, as it would be almost impossible to attempt to mitre it other than by a box made specially to fit it, and with, of course, the ordinary mitre cut in it.

This slight digression, or extra explanation, will be pardoned, as it has been somewhat the outcome of preceding matter.

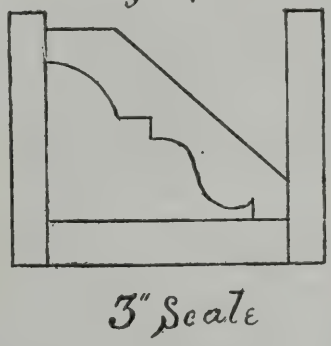
Well, then, be it observed that just as in the fascia it was recommended to have sufficient length to suit the returns, so in the cornice moulding have likewise; and first cut a sufficient

Fig. 272.



length to do one return with the required mitre according to the particular end, then cut the mitre to match that, and having with the mitre plane prepared both these mitres, with the fascia lying on the bench face upwards, place the two pieces of moulding in their right position, and see how the mitre fits; if any slight fitting is required let it be done; mark the length of the piece for the front by just drawing the pencil or drawpoint down along the *return*, marking the back of the moulding at the same time. Now just put a slight mark on the upper edge of the moulding in order to guide in adjusting the position of the moulding in the box before cutting. If it has been seen in fitting the first end that a little extra is required in the length for adjustment, well, allow a fraction, and this is a safe method anyhow; but not so much as to cause an amount of unnecessary labour. When both ends have been carefully adjusted to each other, the holes may be bored for the screws, and handscrews fastened on to keep the moulding in position until it has been temporarily screwed to, and the return pieces likewise; then, when all is

Fig 273



ready, glue and screw permanently. It is as well to fasten the front piece first, as the end pieces can be more readily worked with, and a little of a *draw* could be arranged by boring for the screw so as this would take place. It is surprising how much closer a mitre can be made by this process of *drawing*; of course the screw should be tried in and a thorough test made before the glue is put on the mitre. If, when the glue has been put on and the screw tightened up, any deficiency should present itself, take out the screw, scrape off the glue, wash with a sponge dipped in hot water, and before gluing again rub the mitres with chalk, which dries up

any moisture and considerably helps the gluing in many cases. Should it ever happen in the joiner's practice that sap occurs in a joint-edge, then the chalk is especially serviceable. Remedy the defect noticed above, glue, and screw fast both ends. It needs hardly to be drawn attention to, the matter of the screws being of the proper length, so as not to come through to the face side, and that they are placed in the position best suited for holding the moulding to. The *dentilling* requires no further explanation except the mitring at the corners, and as it is necessary that the dentils should intersect at the corners, provision must be made accordingly; and the provision necessary is to have in the bottom of the *cutting-box* a piece fastened in, concave on its upper surface, so that the piece shall be lying in the same position as if it were upon the cornice moulding in order to put the mitre-cut in it. It would be possible to tack a piece along the back of the inside of the cutting-block, so as to tilt it up to its position as if it were upon the cornice; but it would hardly rest so firmly, and would have a tendency to *stick* the saw before the cut was half gone through.

The neck moulding lower down the overdoor will present no difficulty. It may be glued and needle-pointed to when fitted. The top round-edged piece, forming a kind of capping to all, will be easily arranged also. An additional feature may be made of this by gluing pieces on to show an indented edge.

Fig. 274 gives the section of moulding suitable to glue on to form indents. It is seen that one edge is hollowed to fit the round edge of the capping already on, and the other edge rounded similar to the capping. Besides the glue, these pieces may have each a needle-point put through



them to serve as an extra precaution. The moulding down near the bottom edge of the overdoor, which has been termed the *neck moulding*, seems to be the remains of the *architrave*, which occurs in a somewhat similar position in Classic architecture.

In regard to the fixing of this overdoor, sometimes a *tongue* is left on the bottom edge of the fascia, and a groove wrought for it in the architrave or capping. Two or more vertical grounds may be put up by plugging the brick-joints at suitable points, and of course the grounds will have the necessary projection, so that the back of the *fascia* will go hard against them. Strong, light hooks (sprigs) may be driven through the fascia, &c., at convenient places, where they will be out of sight by reason of the shadow case, say immediately above the neck-moulding, and close down upon the architrave, as also between the dentals if the *ground* has been so arranged. No doubt but the decorator can stop up the holes so as to render them almost invisible to the eye, but a little forethought exercised in this and similar case is very commendable.

On Saturday a new organ was opened in the Wesleyan Chapel, Cullingworth. It was built at a cost of over £700 by Mr. J. J. Binns, of Bramley, Leeds.

The county justices of Northumberland have granted a license for an hotel to be built at Hebburn-on-Tyne, principally for the accommodation of visitors to the shipbuilding yards in the district. These premises will be built from plans prepared by Mr. Stephen Piper, M.S.A., of Westgate-road, Newcastle-on-Tyne, at an estimated cost of £4,000.

Mr. J. Thornhill Harrison was engaged for several hours on Friday, at the Scarborough Town Hall, in conducting, on behalf of the Local Government Board, an inquiry relative to an application by the Scarborough Town Council for powers to borrow over £6,000 for the purpose of executing sewerage and street improvements and other public works. The Scarborough Ratepayers' Association opposed by counsel the application, on the general grounds of alleged extravagant expenditure of the public funds by the corporation.

Building Intelligence.

Batley.—New public baths are about to be constructed on the Market Estate from plans prepared by Mr. Walter Hanstock, of Branch-avenue, Batley. The building will face Cambridge-street, and its dimensions will be 126ft. by 134ft. For the most part, the premises will be one story high. There are to be two swimming baths, first and second class. The latter will measure 91ft. by 49ft., with a water area of 75ft. by 30ft. Dressing boxes will be arranged on three sides, and above these there is to be a spectators' gallery. The first-class swimming bath is to be on the Wellington-street side, and will have a water area of 63ft. by 25ft. Twenty second-class and ten first-class slipper-baths, and a set of Turkish baths, with a cooling and dressing room, a first hot-room, second hot-room, a small third hot-room, and a shampooing room, will also be provided. The cost will be about £10,000.

Campden.—A new Roman Catholic church has just been built in this town from the designs of Mr. W. Lunn, architect, Great Malvern. It is constructed entirely, both inside and out, of local stone, procured from the Westington Hill quarries. The church itself is in the Early Perpendicular style. It consists of a nave and aisles, with chancel and south transept; also a sacristy and outer sacristy, and a bell turret surmounting the south transept. A peal of tubular bells will be fixed in this turret later on. The nave is 65ft. by 33ft., with a total height of 40ft. from the floor. The west window is filled with tracery, and enriched with pinnacles and battlement. In the gable end above is a carved niche inclosing a small statue of St. Catherine, of Bath stone. At the east end of the north aisle is the Ladye Chapel, one of the windows in which contain stained glass, designed by Messrs. Westlake, Lavers, and Co. The nave roof is of red deal, the beams being ornamented with carving and tracery. That of the chancel is of English oak, unpolished and arranged in panels. The floors are of blocks of yellow deal, and set in herring-bone pattern. The temporary wooden altar will ultimately be replaced by one in Caen stone, from the designs of Mr. W. Lunn, which will be carried out by Mr. Wall, of Cheltenham. The seats are of deal. The rest of the woodwork is of English oak. Mr. Collins is the contractor.

Gateshead. — New Higher Grade Board Schools in Whitehall-road, Gateshead, were opened on Monday last. They afford accommodation for over 1,000 children, and occupy a site of two acres. The main block, forming the senior school for boys and girls, is 130ft. by 76ft. (⊔ on plan), and at each end are two classrooms with a folding glass screen, so that they can each be made into large rooms 64ft. by 22ft. These end classrooms are connected with a corridor 80ft. by 13ft., in the centre of which on the west side are two classrooms each 32ft. by 20ft. All the classrooms have glass screens next the corridor. On the east side of the corridor are the staircases to the boys' school upstairs, and two open recesses, 20ft. by 15ft., for hats and coats. The upper floor is arranged on the same plan as the ground floor, and is allotted to boys. There is accommodation for 720 scholars. The junior school is one story high, and is based upon the same plan, on main floor a central hall, 18ft. 6in. wide, and hat and coat recess 20ft. by 14ft. The largest classroom is 45ft. by 22ft., and the other three are 30ft. by 20ft. The buildings are of red brick, relieved with stone dressings. The roofs throughout are broken up with dormer gables. Plans have been approved for a laboratory, where science classes will be held. The total cost, exclusive of laboratory, but including site and fittings, is about £10 per head per child. The architect is Alderman Dunn, of the firm of Messrs. Thompson and Dunn, Newcastle, and the contractor is Mr. T. H. Hutchinson, of Gateshead. Mr. William Edlington has acted as clerk of works.

New Ferry, Wirral — Memorial stones of a Wesleyan chapel were laid at New Ferry, in the Hundred of Wirral, on Sept. 3rd. The chapel will have accommodation provided on the ground-floor for about 530 adults in nave, transepts, and chancel. The chancel is fitted with side pulpit and choir stalls, provision being made for communion table on a raised platform. The transepts have been so arranged that, by means of revolving screens, they may be shut off from the chapel, and so form large classrooms. In a tion to these classrooms, a choristers' vestry been provided at the rear, with accommod for about 450 children in school and classr which will shortly be erected. The sty Decorated Gothic, a tower and spire arranged to the right of the main front. A traceried window has been designed in the gable, and all the chapel windows have enr tracery heads. The buildings, except rear e tion, are faced with red rock-faced sandstone Helsby, and the window and door dressing of Runcorn stone. The contract for the portion of the scheme is being carried ou Messrs. Kelly Bros., of Walton, for the su £2,275, from the designs of Mr. Thomas Cubbon, of Birkenhead, whose plans were sel in a limited competition.

CHIPS.

The memorial stone of a Baptist chapel wa in Victoria-road, Fenton, Staffs, on Thursd last week. Messrs. Windcap and Perkin, of Lo were the architects, and Mr. Cornes, of Hanle the contractor. The cost will be about £2,100

Mr. Edwin Oakes, of the firm of Oakes and builders and contractors, Hunslet, Leeds, died suddenly while walking on the Parade at Brid ton Quay on Saturday week. The deceased built himself a house in Sand's-lane, Bridlin Quay, which he commenced to occupy abo month ago.

An inquiry was held at Sunderland Town on Friday, having reference to the applicati the corporation for the sanction of the Government Board to the borrowing of £1,00 the purchase of land for the purpose of public and pleasure grounds. The town clerk expl that the corporation were already possessed of a at Roker, consisting of about nineteen acres, a is proposed to purchase from the Ecclesiastical missioners another twelve acres, which immedi join the beach, for £1,000.

Additional decorative work has just been pleted at St. Paul's Church, Burton-on-Tren the cost of Lord Burton. It consists of the pai of the roofs of the chancel and sanctuary. roofs are composed of a series of small panels those in the sanctuary contain alternately figure of an angel, with raised gold wings nimbus, and the sacred monogram on a shield the chancel panels the subjects are the cross-sw the letter "P," and the crown, the emblems o Paul. The work has been carried out by M Powell Brothers, of London and Lincoln, und supervision of Mr. G. F. Bodley, A.R.A.

A new Salvation Army citadel in King-s Peterborough, will be opened next month. O front portion of the site, shops, with suit offices above, have been built, the contracto this portion being Mr. Hipwell, of Wis Behind these is built the citadel, which is with red brick and stone dressings. It is 70 41ft. inside measurements, and, by the use very deep gallery, will seat nearly 1,000 pe Mr. Maine, of Loughborough, is the contracto the citadel building.

St. Michael's Church, Lichfield, has been rest and will soon be reopened. The walls o chancel, which were covered with plaster, been restored to their original condition, and fine east window replaced. The masonry o tower has been re-pointed, and decayed s replaced. The clock and dial have been raised an old window opened out. The stair turre been made good, so that the battlements can be reached.

Herr Glückel, an architect of Vienna, who taking a tour in the Austrian Alps, and is k to have ascended the Hoch König, near Bisc hofen, without a guide, has been missing August 19.

The Countess of Leicester laid, on Monda Burnham Thorpe, North Norfolk, the prin stone of a public hall which is being erect that parish to the memory of Nelson, who was there in 1758, when his father was rector. Th no memorial in the place to Nelson, and the fir parish church is being restored at a cost of £1 The hall forms part of the entire scheme.

Messrs. S. and E. Bentley, contractor Leicester, have withdrawn their tender, whic been provisionally accepted, for the carrying of the York Sewerage Scheme. Mr. Bottoms weeks ago broke the contract for reasons stated.

The contract of Mr. Thomas Bell, of M Weighton, for the construction of the Easing Waterworks, is approaching completion. Th a steady flow of water, which will be turne the reservoir in about a fortnight.

COMPETITIONS.

Glasgow.—The executive of the Glasgow sociation for the Promotion of Art and Music ve issued the conditions of the preliminary petition for the proposed art gallery and er buildings in Kelvingrove Park. Architects invited to submit sketch designs for build- s intended to provide accommodation for a tral hall, art galleries, museum halls and leries, a school of art, refreshment rooms, . There will be two divisions of the com- ition—a preliminary one of sketch designs n to all; and a final one, limited to those o may be invited to take part in it. It is ected that the central, or music, hall should be principal feature, its floor space being not re than 12,000 square feet; that the suite of galleries should provide not less than 2,000 eal feet of wall surface, in saloons measuring more than 45ft. in width; that the museum ls and galleries should possess, if possible, 000 square feet of floorage, disposed to allow spacious display of sculpture antiquities, neral art collections, technological and gineering exhibits; and that the school of art ould, if possible, possess a floorage area of 000 square feet. The sum at disposal is 20,000, and the committee do not wish to eed that sum. Mr. Alfred Waterhouse, A., has been appointed to act with the com- ttee as assessor, and with his advice the com- ttee will select six from the designs in the liminary competition, whose authors will be ited to take part in the final competition. ch of the architects so invited will receive hundred guineas, except in the case of the cessful competitor, whose premium shall rge in his commission of 5 per cent. for carry- out the work. All designs must be sent in 1st December next, addressed to Mr. Water- use, at the City Chambers, Glasgow. The day sending in designs in the final competition ll probably be 31st March, 1892.

Kendal.—A competition has recently taken ace here for additions to the town hall, com- ising court room for petty and quarter sessions, d county court, with retiring room and rary, witnesses' rooms, &c.; also council amber, with mayor's parlour and four com- ttee rooms, offices for borough treasurer, rough surveyor, medical officer of health, niment rooms, &c.; also, for the borough lice: two offices, constables' room, and three lls; for the county police: superintendent's ice and two cells. The assembly room is also be enlarged, so as to seat 800 to 1,000. At e request of the Corporation of Bury, Messrs. eming and Leeming are to act as assessors in e matter.

Providence, R.I.—The State of Rhode Island about to select a design for its new State-house Providence, by a process described by the *merican Architect* as "very nearly a model mpetition." Messrs. Hoppin, Read, and oppin, and Messrs. Stone, Carpenter, and Vilson, and W. R. Walker and Son, of Provi- nce, and Messrs. Carrère and Hastings, McKim, ead, and White, and J. C. Cady and Co., of ew York, and Messrs. Shepley, Rutan, and oolidge, of Boston, have been invited to submit signs. For each design which shall be rtified to by the expert architects who will sist the Commission, as complying with the nditions of competition, one thousand dollars ill be paid, provided that its author shall have ade no attempt to influence the decision of the ommissioners or their advisers, and that it shall ppear that the probable cost of carrying it into xecution will not exceed by more than 25 per nt. the limit of one million dollars (£200,000 early) fixed by the conditions; but the property the plans still remains in the architects sub- itting them, and they are only to be used by greement with their authors and further com- nsation. From the designs furnished which nform to the conditions, one will be selected, hich will be presented to the General Assembly the State as the design for the new building; t this design will still remain the property of e architect or firm who made it, and is not to used unless such architect or firm is employed carry his plan into execution according to the ules of the American Institute of Architects. s the Commissioners are only authorised to esent a plan, but not to engage an architect, ey were unable to bind the State to employ the emiated competitor.

TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the Building News, 332, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

Cheques and Post-office Orders to be made payable to J. Passmore Edwards.

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ADVERTISEMENT CHARGES.

The charge for Competition and Contract Advertisements, Public Companies, and all official advertisements is 1s. per line of Eight words, the first line counting as two the minimum charge being 5s. for four lines.

The charge for Auctions, Land Sales, and Miscellaneous and Trade Advertisements (except Situation advertisements) is 6d. per line of eight words (the first line counting as two), the minimum charge being 4s. 6d. for 40 words. Special terms for series of more than six insertions can be ascertained on application to the Publisher.

Front Page Advertisements 2s. per line, and Paragraph Advertisements 1s. per line. No front page or paragraph Advertisement inserted for less than 5s.

Situations.

The charge for advertisements for "Situations Vacant" or "Situations Wanted" is One Shilling for Twenty-four Words, and Sixpence for every eight words after. *All Situation Advertisements must be prepaid.*

Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page advertisements and alterations in serial advertisements must reach the office by Tuesday Morning to secure insertion.

NOTICE.

Bound volumes should be ordered early (price Twelve Shillings each), as only a limited number are done up. A few bound volumes of Vols. XL., XLI., XLVI., XLIX., L., LI., LIII., LIV., LVIII., LIX., and LX. may still be had, price Twelve Shillings; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

Constant Reader. (1, 2, 3, 4. Registration of designs is obtainable at the Government Patent Office, Southampton-buildings, Chancery-lane, where all particulars can be obtained. It is best to employ a patent agent. The principal patent agents advertise in the English Mechanic, and any of them will send full particulars on application. You cannot register architectural designs. You can *patent* architectural plans, but it is as yet doubtful if such a patent is of any service. 5. There is no remedy for the piracy of architectural designs.)—Fred T. (Only "Granny's" way! When her chicks are six months late, she always declares her eggs were laid in some other nest.)

Received.—W. D.—F. F. and Co.—U. L. B.—B. of B.—C. M. and Co.—G. and G.—B. B. and Co.—J. T.—B de C.

Correspondence.

THE JAMES WHITE, OF OVERTOUN, STATUE.

To the Editor of the Building News.

Sir,—In your report of the unveiling of this statue in your issue of 22nd ult., you refer to the statue as "the last work of the late John Mossman, of Glasgow." Sir James King, who performed the ceremony of unveiling the statue, is responsible for this statement, he having in the course of his speech said: "This beautiful work of art is the last work of Mr. John Mossman." Had Sir James looked at the base of the statue before making his speech, he would have observed cut in the bronze the name "Frank Leslie, Sculptor."

The facts of the matter are as follows: The committee gave the late Mr. Mossman the commission to make this statue. My client, Mr. Leslie, was Mr. Mossman's right-hand man—indeed, had been connected with Mr. Mossman for thirty-five years at the time of his death—and the entire work of modelling the statue and everything connected with it was done by Mr. Leslie. When Mr. Mossman died, Mr. Leslie took a studio for himself at 180, West Regent-street, here, and the committee being anxious that the work commenced and carried through, so far, by Mr. Leslie should be finished and erected by him, he made an arrangement with Mr. Mossman's trustees, whereby he took over his own handiwork, and has now brought it to a successful conclusion.—I am, &c.,

A. Stewart Picken.

163, St. Vincent-street, Glasgow, Sept. 7.

A CORRECTION.

Sir,—I notice in your issue of to-day's date, and under the heading "An Incident in the Building Trade," that you have erroneously stated that the foundations of the new Admiralty Buildings in Whitehall were carried out by Messrs. Mowlem and Co.

As the work was executed by my firm, I shall be obliged if you will kindly make the necessary correction in your next issue.—I am, &c.,

William Webster.

8, St. Martin's-place, Trafalgar-square, London, W.C., Sept. 4.

[We apologise for the obvious slip.—Ed. "B. N."]

CHIPS.

A new building, comprising dispensary, baths, &c., has been erected at Swindon for the Great Western Railway Medical Fund Society, and special attention has been paid to the ventilation, the extraction of the vitiated air being effected by the latest improved form of Messrs. Robert Boyle and Son's patent self-acting air-pump ventilator.

The Manchester corporation recently sought to obtain a site for artisans' dwellings, and offered for a block of old property £21,000. The owners declined this, asking £64,000. The matter went before an arbitrator, whose award, taken up last week, amounted to £38,000.

Cheltenham has, says the *World*, been bereft of a theatre ever since the octopus-like Ladies' College swallowed up the old theatre some two years ago. During the past few months Mr. Matcham has been building a new one endowed with a gorgeous Louis XV. interior, and Mrs. Langtry will open it on the 1st proximo.

A banquet was given on Tuesday night by the chairman of the Oldbury local board, to celebrate the completion of the new public buildings which have been erected in Freeth-street, adjoining the public hall. The block of buildings comprise a boardroom, committee rooms, free library, reference library, reading room, and also offices for the accommodation of the public officials. The total cost, including the site and furniture, is between £6,000 and £7,000. The architects were Messrs. Wood and Kendrick, of West Bromwich.

Mr. William Landless, architect to the Leeds School Board, has been appointed by the School Board of West Hartlepool to act as assessor in the competition for the Newburn board school.

The restoration of the tower of St. John's Church, Yeovil, is now almost complete, and the re-hanging of the peal of eight bells, together with two new ones added, is now being proceeded with. The restoration of the tower and bells will cost over £1,000.

The new Ebenezer Congregational Church at Chatham, which is being reared on the site of the building destroyed by fire last winter, is so far advanced that the memorial stones were laid on Wednesday week. The architect of the new building is Mr. G. E. Bond, of Chatham, and the contractor is Mr. C. E. Skinner, also of Chatham. The outlay in reinstatement will be about £6,425.

The Three Horse Shoes hostelry at Ramsey, Hunts, which was burnt to the ground in March last, has just been rebuilt from designs by Mr. Ruddle, architect, of Peterborough. The new front is of red brickwork, and has three gables, in each of which is a Bath stone panel carved with a raised horseshoe. Mr. A. J. Bateman, of Ramsey, was the builder.

The parish church of Dartford, Kent, will be re-opened, after restoration and partial rebuilding, on the 25th inst.

Some workmen were engaged on a building in course of erection at Pontywain, South Wales, on Monday, when the scaffolding collapsed, drawing with it the end of the building. Samuel Hicklas, of Newport, was buried in the débris, and killed. Mr. Evans, the contractor, was injured.

Manchester is not so rich in architectural features of interest that it can afford to destroy the few characteristic buildings it possesses, and it is to be regretted that the corporation of that city, unmoved by the appeal of the local Society of Architects, backed up by Mr. Waterhouse, have finally determined upon the demolition of the 18th-century tower of St. Mary's Church in Deansgate.

The Wesleyan chapel in Old King-street, Bristol, was reopened on Sunday after renovation carried out by Messrs. W. Cowlin and Son, from the designs of Mr. Herbert J. Jones, also of that city. The ventilation is by Messrs. Robert Boyle and Son's improved air-pump ventilators.

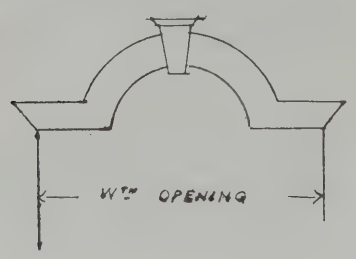
Intercommunication.

QUESTIONS.

[10621.]—**Fan-Tracery Vaulting.**—Will a kind reader name some books, or book, wherein I shall find good examples of the method of setting out and drawing of fan-tracery vaulting, for which I shall feel greatly obliged?—Groining.

[10622.]—**Surveying.**—Will some reader kindly tell me how to set out a straight line with the theodolite? How am I to proceed when it is necessary to move the instrument, and also to continue the line over a high embankment?—Student.

[10623.]—**Brick Arch.**—I want to construct an arch as shown by sketch, without the use of an iron bar.



Would some reader kindly inform me how to do so? A similar arch was, I think, given in one of the back numbers, but after long-continued searching I am unable to find it.—E. H. W.

[10624.]—**Cream-Colour Wash for Portland Cement.**—Could any of your readers recommend a colour-wash for outside cement work (Portland)? I want to get a cream tint. Any suggestions from practical experience would be thankfully received.—H. B.

REPLIES.

[10611.]—**San. Inst. Exam.**—Messrs. Knight and Co., Local Government publishers, have issued "A Practical Guide for Inspectors of Nuisances," price 4s. 6d. (second edition, 1891.)—Officer.

[10615.]—**Hot-Water Engineering.**—Has "Inquirer" read all the articles? If the cylinder is on first floor, and so far removed from the range as to require 41ft. of double pipe (primary flow and return), there is every probability that the chief feature, the safety of the cylinder system, will be lost, as a draw-off may have to be taken from the primary flow below the cylinder. It may be assumed that taps are required down on the range level at the scullery sink, &c., if so, these could hardly be taken from above the cylinder up on the first floor. There is no particular limit to the length of the primary flow and return so long as it does not do away with the destructive features of the cylinder system—viz., that no draw-offs (except the special emptying service) be taken from below the cylinder. That the cylinder be in a warm position. That the nearer the cylinder is to the boiler the more rapidly its contents will become heated. If warmth be needed in a linen closet, then it is far better to use a small coil in the way that will be fully described presently. Certainly cover exposed primary flow and return pipes—great benefit will result.—The Writer of the Articles.

[10616.]—**Hot-Water Engineering.**—Replying to H. Stream, the question he puts is not very clear, as his reference of "A to B" cannot be understood. If he wishes to know what is the maximum distance may extend away from the secondary flow, then the writer cannot say, as he has not discovered a maximum distance yet. An apparatus just completed with the fire, boiler, and cylinder as referred to, has the secondary return extending 161ft. in an almost straight line before it makes a turn to approach the secondary flow again. This apparatus works perfectly, even though the highest point of erection is not 18ft. above the cylinder, and there are one or two other features more conducive to harm than good, so far as results are concerned. In this case these good results were noted before the pipes were covered; by covering them with a poor heat-conducting material, a benefit equal to at least 25 per cent. must be experienced. With the pipes uncovered, the last draw-off in the return near the cylinder did not yield very hot water with such an extensive run of pipe as this, particularly as the cooling influence was considerable, the pipes being in stone corridors. With the pipes really well covered, the last draw-off service would yield water nearly as hot as the first one.—The Writer of the Articles.

[10618.]—**Greasy Marble.**—"Querist" should try a mixture of two parts washing soda, one part pumice stone, and one part chalk; these should be finely powdered, and made into a paste with water. Rub well over the mantelpiece, and finally wash off with soap and water.—A. A.

[10618.]—**Greasy Marble.**—There are many ways of taking grease out of a white marble mantelpiece. A good plan is to apply whiting or fuller's earth, satuarated with benzine; allow it to remain on the marble some time, then wash off.—Journeyman.

Extensive alterations are about to be made at the Palace at Peterborough for the new Bishop. Mr. H. M. Townsend, of that city, is the architect.

It has been decided to place a stained-glass window in the parish church of Enniskillen to the memory of the late Mr. Quinton, C.S.I., who was killed at Manipur, and a memorial brass in the large schoolroom at Portora Royal School, Enniskillen.

WATER SUPPLY AND SANITARY MATTERS.

Bradford Waterworks Extension.—The Bradford Town Council, at their meeting on Tuesday, adopted the recommendations of the Waterworks Committee for a modification of the scheme for obtaining water from the Nidd Valley. The present engineer, Mr. J. Watson, has come to the conclusion that it is desirable to deviate from the original scheme as prepared by Mr. Binnie. Mr. Watson's modification, which can be effected without any additional expenditure, consists of an alteration of the level of the gathering conduit, so as to enable the water to be delivered to reservoirs at Bradford by gravitation. The change will reduce the area available as gathering ground, but it will obviate the necessity of having to resort to pumping-stations to get the water to the higher parts of the town. For the purpose of his plans, Mr. Watson divides the Bradford district into three zones, each with its own district of supply. Under this method, the waters of Upper Barden, Lower Barden, and Chelker reservoirs would be used on the low-level zone; the water obtained from the Nidd valley would serve for the middle zone; and the Thornton Moor and Stubden supplies would meet the needs of the high-level zone. Another advantage of the amended scheme would be that the distance to be traversed by the water will be reduced by about seven miles, for Mr. Watson intends to tunnel through Rainstang, instead of going round Middlesmoor, and to make the tunnel through Greenhow Hill at a higher altitude, which will have the effect of shortening it. His scheme provides for two service reservoirs at Chellow Heights, each having a capacity for 30,000,000 gallons, with filter-beds capable of dealing with 18,000,000 gallons per day, and a clear water-basin for 2,250,000 gallons.

Guildford.—Mr. Arnold Taylor, a Local Government Board inspector, held an inquiry on Wednesday, at Guildford, into the application of the Town Council for sanction to borrow £35,000 for sewerage and sewage disposal, and into the propriety of constructing outfall works in the district of another authority. Opposition was offered to the site of the proposed outfall works by the Guildford Rural Sanitary Authority and Highway Board, and by the tenant of an adjoining farm; but they did not object to the drainage scheme itself. Mr. Sparkes, C.E., of Guildford, suggested that several of the surrounding villages and the borough of Godalming should be asked to unite with the borough of Guildford in the scheme as a matter of economy, but the Inspector called his attention to the Lower Thames Valley scheme, which cost a deal of money, and ultimately had to be abandoned in favour of separate schemes for the different localities.

CHIPS.

At the monthly meeting of the Llanelly local board, held on Monday, the question of new municipal buildings and town-hall was discussed, and after a protracted debate it was decided that a public meeting be held to consider the question.

The new opera house at the Winter Gardens, Southport, was opened on Monday night. The new opera house faces Lord-street, and occupies the site of an older hall. Exclusive of the value of the site, and of the material obtained from the demolition of the hall, the cost has amounted to £20,000. The architect is Mr. Frank Matcham, of London. The stage is 50ft. deep, 80ft. wide, and 60ft. high. The building is lighted throughout by electricity and gas.

The death took place on Saturday evening of Mr. James Howarth, of the firm of Howarth and Co., ventilating engineers, Farnworth, near Bolton. Mr. Howarth was the inventor of the archimedean screw ventilator, which has worked a revolution in ventilation science, and for his invention was made a member of the Academie National de Paris.

The Portsmouth Town Council decided on Tuesday to adopt the electric light, and agreed to borrow £60,000 to cover the cost of the site and machinery.

Among the receiving orders announced in Tuesday's *London Gazette* the names occur of Thomas Vincent Herbert Davison, of New Malden, late of Windsor, architect and surveyor; and Richard Thomas Elsam, of Kingston-on-Thames, also an architect and surveyor.

The alterations to the Lyceum Theatre, which have been in hand since the close of the season in July, are now complete. A new wide exit leads from the pit into Wellington-street. A new wide staircase leads to the upper circle and amphitheatre. The gallery has been almost doubled in size. A new way has been made to the stalls on the south side, and the footlights and the entire auditorium have been provided with electric light, in place of gas.

Our Office Table

An animated discussion on the eight h question took place on Wednesday at the T Union Congress at Newcastle-on-Tyne. A posal was made to omit from the resolu introduced the previous day, the eight h limit for an international day, on the ground the English Government would be hamper dealing with other countries; but the Con rejected the suggestion. An amendment then moved declaring that eight hours l lation should be permissive, and applicable to any particular trade at the request of thirds of its organised members. The propos was passed, and became the substantive lution. A debate followed, and ultimatel amendment was carried making the propose apply to all trades, except where a majori members objected by vote.

On Monday next a show of water-c drawings by deceased artists will be open the Gallery in Whitworth Park, Manch It includes 47 pictures that are already property of the Institute, 67 lent by Mr. Taylor, 27 by Mr. James Orrock, 12 by the ham Corporation, 37 by Sir John Pender, Sir J. D. Linton, and one—a very fine one Mr. Cash. One of the 47 Whitworth draw a J. R. Cozens of much historical value, has given to the Institute by Mr. J. E. Taylor remainder are presented by the guarantors o Jubilee Exhibition. Turner is represente 20 examples, William Hunt by 17, Cox by Cozens by 8, George Barret and Varle 7 apiece, Müller by 6, Prout and Girti 5 each, Sandby the Elder and de Wi 4 each, and Copley Fielding by 3; and ther also works by Bonington, Sir Augustus Cal Cattermole, Clennell, Constable, Cristall, Da Glover, Havel, Hearne, Leslie, Linnell, L sedge, Martin, Munn, Roberts, Robson, landson, Clarkson Stanfield, and Stothard.

The Hornsey Local Board have acq about eight acres of picturesque and well wo land for the extension of their pleasure ga at South Hornsey. As the property was to be laid out for building, the board autho its chairman (Mr. H. R. Williams) to neg with the owners with a view to its purchase it has now been secured for the sum of £5 and is now being inclosed with iron ra previous to being laid out as a public recre ground. The newly acquired property co some fine trees, and extends from the exi pleasure gardens at Hornsey to Crouch End is situated in the midst of a district whi being rapidly covered with houses. The ac tion of this property, although of some limited area, will be a lasting benefit t neighbourhood, and it is to be hoped tha H. R. Williams will be equally successful i efforts he is making to obtain the bea grounds of the Alexandra Palace as a p park for the use and enjoyment of the peopl

It seems extraordinary that no building responding either to our National Gallery, Kensington Museum, or British Museum which artistic objects of all kinds could be h and displayed, exists in the city of Washing but attention is called to this strange fact b issue of a pamphlet by Mr. Franklin W. S entitled a "Propaganda for the National Ga for Washington." Mr. Smith, who was for a merchant in Boston, and has been for 40 an enthusiastic collector, suggests that a hu acres of gallery space should be set apart museum, and the site be covered with buil to be executed in concrete.

Elie Delauny, the well-known po painter and mural decorator, died on Saturd his house in Paris, aged 63 years. He st under Lamothe and Hippolyte Flandrin, a 1856 won the Prix de Rome. On his retu Paris, a number of remarkable works, so which are now at the Luxembourg, "The munion of the Apostles" and "The Plag Rome," gave him a position in the foremost of contemporary painters. He will, howeve best remembered for the fidelity and charac his portraits. Ten years ago he publishe remarkable illustrations of La Fontaine. A same time, he was busily engaged in an of Paris in the decoration of churches and buildings. His works are to be seen i

pelle des Dames de la Visitation, in Sainte ie at Nantes, his native city, and in Paris at t François Xavier, the Church of the nity, the Hôtel de Ville, the Panthéon, and Opéra. He was a member of the Institut de nce.

HE most perfect lightning protection is said e secured when the building is virtually in a allic cage, the parts of which in connection the earth are thoroughly connected with the st stratum. At each corner of a large ding there should be a conductor of sufficient as to take the greatest possible discharge of electric current. It should have a factor of ty. A ½in. iron rod is supposed to be ample he rod is connected to water or gas-pipes, or a moist well, or pit filled with coke or tin p. Very few buildings, we fear, are pro- ed on this principle. The electric current is to meet with an obstruction in the descent of e improperly-fitted conductor, and make a age through ill-protected and poorly-con- ing masonry to some metallic fitting in the rior; hence the serious damage sometimes cted. The fixing and arrangement of the ductor on properly understood principles are ntial to the protection of a building. The ent will take the path of "least resistance," chever that be, whether the rod or the build- and its contents.

wo pictures recently purchased by the tish Board of Manufactures have just been d to the National Gallery collection at Edin- h. The more important of the two is a k which is attributed to Karl van Mander the ger—a son of the Flemish painter and er of the same name. The son flourished he 17th century, and became Court painter to Danish King. This work is a cabinet por- of two well-attired youths. On the right he figures, for background, there is a marine . The other picture is a small work by enburgh, who, born at Utrecht in 1586, ied in Italy, where his style was largely enced by the Italian masters. The subject Venus and Adonis." Of neither painter was e until now an example in the National lery of Scotland.

BULLETIN of the United States Census De- ment shows that in 1889 the total amount of alte produced in the United States was 51,735 t tons, valued at £34,300. Of this California duced 47,968 tons, and Utah 3,163 tons; st the whole of the remainder came from tucky. Nearly 500 tons, however, were ined from the gilsonite of Utah, and this is to be the purest yet found, containing 90 cent. of bitumen in the crude mineral. The fornia deposits of Ventura country are in a minous rock, containing 24 per cent. of men and about 64 per cent. of silica, with e of iron and calcium carbonate. The ter part of the supply of asphalte comes from idad and the deposits of Seyssel, in France, Val de Travers, in Switzerland. Cuba fur- es excellent asphalte, and large deposits are rted to exist in Tabasco, Mexico. The im- ation of asphalte into the United States menced in 1869, when 185 tons, worth 2dols., were imported. This quantity in- sed until in 1889 61,952 tons, worth 163dols., were imported. Of this 52,881 tons e from Trinidad. The imports of bituminous stone from Neufchatel and Seyssel amount to t 200 tons annually; and about 150 tons of milar material are imported from Hanover Brunswick. During 1887-90 about 6,000 of bituminous limestone were imported from ly and used in street paving. The number quare yards of Trinidad asphalte pavement in the United States is now 6,803,054, reas in 1880 there were 100,838 square yards n. About 72 per cent. of all the Trinidad alte imported is used for street paving, 24 cent. is used in asphalte block and tiles for ements, and 3 per cent. for roofing. The l area covered by bituminous limestone pave- ts in European cities is given as follows:— lin, 681,486 square yards; London, 360,000 re yards; Paris, 357,360; other cities, 000—total, 1,698,846. This is equivalent to t one-fourth of the area covered by asphalte ement in the United States, and less than was in the States in 1890.

HERE are 413 species of trees found within limits of the United States and Territories, en of which, when perfectly seasoned, will in water. The heaviest of these is the black ironwood, found only in Southern Florida, which is more than 30 per cent. heavier than water. Of the other fifteen, the best known are the lignum vitæ and the mangrove. Texas and Mexico are the homes of a species of oak which is about one and one-fourth times heavier than water, and which, when green, will sink almost as quickly as a bar of iron. It grows only in mountain regions, and has been found westward as far as the Colorado desert, where it grows at an elevation of 10,000ft.

CHIPS.

For the past few days some important excav-tions have been going on under the old city walls at Chester. The point at present receiving attention is to the west of the north gate. Already four inscribed stones and several pieces of sculptured and architectural monumental stones of great interest have been discovered. All, it is believed, date further back than the 5th century.

A portion of the railway which is being built by an English company, and which will place Gibraltar in communication with the rest of Europe, was opened on Monday. This section, which is forty-five miles in length, connects Bobadilla with Ronda.

The result of the second and limited competition which has taken place in Berlin for the erection of a monument to the Emperor William I. is far from satisfactory. The present Emperor has awarded the first prize to the design of Herr Karl Hilgers, granting, however, almost immediately afterwards to the other competitors—Herren Reinhold Begas, Bruno Schmitz, and Johannes Schilling—money prizes of exactly equal amount with that given to the victor. It is very doubtful whether the premiated design will be carried out.

The members of the Durham and Northumberland Archæological and Architectural Society visited, on Friday, Richmond Castle, the church at Gilling, and the church and castle at Kirkby Ravensworth.

At the Wigan Police-court on the 3rd inst., John O'Niell, builder, of Darlington-street, in that town, was fined 10s. and costs for receiving corporation water knowing it to have been stolen. When a building inspector visited a site on which defendant was building he found that water was being drawn for the works from a tap in a private house.

According to the annual report of the Commissioners of Inland Revenue more than one-third of the whole annual value of houses and messuages in England and Wales is to be found in London, and more than one-fourth of that of the United Kingdom. The annual value for London last year was £35,155,593, and for the United Kingdom £138,589,982. Land improved slightly in value, both in the Metropolis and in the country generally; but in most of the purely agricultural counties there was a further decline.

The widening of the Great Western Railway between Waltham and Maidenhead is being rapidly proceeded with. All the bridges are being widened, and a new goods station is being built at Maidenhead. Mr. Mackay is the contractor for this section of the work.

Under the title of "A Model Museum," a correspondent of the *Times* describes the collection of local antiquities brought together by General Pitt-Rivers in a disused school at Farnham, a North Dorset village. The museum is opened freely on Sundays and during the week, and was visited last year by 6,500 people.

Another stage has now been reached in the scheme for providing baths and washhouses for Woolwich, the local board of health having received tenders from builders for the purchase and removal of the building materials of the houses and premises now occupying the site in Market-street, Upper Market-street, and Lower Market-street.

On Sunday night a policeman found Mr. Frank Whitby, builder and contractor, of Bradford, about fifty years of age, and residing at 41, Mildred-street, lying across a footpath. On being raised, he was found to be dead.

The Plymouth town council decided on Wednesday to erect memorials commemorating the departure of the *May Flower* from Plymouth and the battle between the Roundhead and Cavalier forces. The first of these memorials will take the form of a tablet, fixed in the pavement on the Barbican Pier, mentioning that the Pilgrim Fathers embarked from there September 16th, 1620. The other will consist of a pedestal placed in Freedom Fields recording that "on December 3rd, 1640, the three Roundhead garrisons of Plymouth made their final rally and routed the Cavalier army, which had surprised the outworks and well-nigh taken the town."

An important scheme of railway improvements at Belfast, involving, if executed, an expenditure of three-quarters of a million sterling, is under consideration. Sir Frederick Bramwell is the consulting engineer.

Trade News.

WAGES MOVEMENTS.

EDINBURGH.—A meeting of Edinburgh journeymen upholsterers was held on Friday night at the Labour Hall, South Bridge-street, to consider the question of amalgamation with the societies of England and Ireland. Mr. Gabriel Wallace presided. Mr. A. Haldane moved a resolution pledging the meeting to do all in its power to increase the membership. He commented upon the fact that the membership of the society only amounted to two-fifths of the number engaged in the trade in the city. Mr. T. Walker seconded and Mr. G. Mackay supported the motion, which was unanimously carried. Speeches urging the need of immediate combination were also delivered by Mr. Cossar, and by Mr. Purdie, chairman of the Trades Council. — The quarterly meeting of the Edinburgh Masons' Federation was held on Friday night at the Moulders' Hall. A small balance in hand was reported. The members on the roll were 392. A member stated that things were looking better for the men. On a certain job at Morningside a further increase of a farthing had been given without being asked for. This showed that the generally-improved state of trade in the country was raising the wages independently of agitation.

THE CARPENTERS' STRIKE IN LONDON.—The United Trades Committee have issued this week a manifesto, giving a retrospect of the dispute, and expressing a determination to continue the struggle. Support, it is stated, is greatly needed, as there were still 3,500 men on the strike roll. At the Trades Congress meeting at Newcastle, on Tuesday, after hearing Messrs. Bowern and Matkin, the delegates of the United Trades Committee, a resolution was unanimously passed expressing sympathy with the London carpenters and joiners in their struggle. Mr. Richard Day, of Manchester, chairman of the Amalgamated Society of Carpenters and Joiners, is on a visit to London to see for himself the arrangements made by the committee. At a meeting held at the White Hart, Belvedere-road, Lambeth, on Tuesday night, Mr. Day stated that the Amalgamated Society were prepared to keep their men out on strike for two years if necessary, and that cablegrams had been received from India, Australia, and America, where the society has branches, that levies had been made in support of the men locked out and on strike in London, and that the money so collected was being sent to England.

New G. N. R. schools for boys, built at New England, Peterborough, at a cost of £500, were opened last week. Mr. Johnson, of the G. N. R. engineer's office, prepared the plans, which are of the Queen Anne style, and are an elongated H on plan. Messrs. Bell and Son, of Nottingham, were the builders.

Holloway's Pills completely cleanse the blood, expel all oppressive accumulations from the bowels, and purify both solids and fluids. With the blood perfect, and all poisons purged from the system, regularity must prevail throughout the body, aches and pains must cease, healthful energy must supplant weariness, and the shaky nerves must regain their wholesome tone.

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TENDERS.

*** Correspondents would in all cases oblige by giving the addresses of the parties tendering—at any rate, of the accepted tender: it adds to the value of the information.

ACTON.—For constructing first portion of new road and sewer at Acton, for Mr. E. J. Edwards. Mr. C. R. Maddox, F.S.I., Warwick-court, Gray's Inn, surveyor :—

Rowles, M. W.	£979 0 0
Nowell and Robson	669 0 0
Serff Bros., and Co.	665 0 0
Cronin, D.	623 13 6
Catley, A. T.	620 0 0
Warner and Co.	588 0 0
Parry, E.	580 0 0
Tomes and Wimpey (accepted)	580 0 0

ASHFORD, KENT.—For the erection of a house on the Beaver Estate, Ashford, for Mr. W. E. Pledge. Mr. H. J. Jeffery, M.S.A., architect :—
Conley, G. C., Folkestone (accepted).

ASHFORD, KENT.—For the extension of Christchurch-road, laying in main drain, and forming the footpaths, Beaver Estate, Ashford. Mr. H. J. Jeffery, M.S.A., estate surveyor, architect :—

Knoch, H., Ashford	£420 0 0

BARRY.—For Park Hotel, Charles-square, Barry, for the Park (Barry Dock) Building Co., Limited. Mr. W. H. D. Caple, architect :—

Jenkins and Arnold, Barry	£2,674 0 0
Stephens, Bastow, and Co., Bristol	2,597 0 0
Shepherd, C., and Son, Cardiff	2,475 0 0

BLACKHEATH.—For erection of stabling at Blackheath, for Mr. T. Tilling. Messrs. Jarvis and Sons, architects :—

Nicholls	£4,303 0 0
Brass and Sons	4,283 0 0
Hart Bros.	4,169 0 0
Higgins, F. and H.	3,900 0 0
Burman	3,750 0 0
Jerrard	3,689 0 0
Barker	3,652 0 0
Kennard Bros.	3,651 0 0

BANHAM, NORFOLK.—For the repair of the schools, for the Banham Board School :—
Kettle, A. (accepted).

BLACKPOOL.—For a shop and dwelling-house, Lytham-road and Springfield-road, for Mr. G. H. Holmes. Mr. J. Horsfall, Todmorden, architect :—
Accepted tenders.
Masons and bricklayers :—Butterworth, S., and Sons, Blackpool.
Carpenter and joiner :—Sutcliffe, J., Todmorden.
Slating :—Baines, S. and J. W., Todmorden.
Plumbing :—Coulston, J., Blackpool.
Plastering :—Hodgson, C., Blackpool.

BRISTOL.—For warehouses, Temple Back, Bristol, for Messrs. F. Clarke and Son. Mr. W. B. Gingell, architect :—

Serle	£3,453 0 0
Wilkins	3,400 0 0
Walters	3,295 0 0
Neale	3,253 0 0
Hatherly	3,204 0 0
Brock	3,050 0 0
Easterbrook	2,998 0 0
Beachem and Balment	2,965 0 0
Perkins	2,898 0 0
Cowlin and Son	2,894 0 0
Veals	2,894 0 0
Stephens, Bastow, and Co.	2,849 0 0
Love	2,775 0 0

BRISTOL.—For the supply and erection of entrance gates at Victoria Park, for the sanitary committee :—
Sampson and Sons, Malago Vale, Bristol .. £1,066 16 10
[Only tender received; the committee will re-advertise for separate tenders for masonry and ironwork.]

CHELSEA.—For pulling down and rebuilding premises for Mr. W. Cosby-Broom. Mr. W. Hunt, 5, York Buildings, Adelphi, W.C., architect :—

Downs, W.	£1,080 0 0
Turtle and Appleton	1,048 0 0
Wall, C.	1,045 0 0
Nightingale, B. E.	948 0 0
Knight, S.	890 0 0
Eyears	847 0 0
Somerford, H., and Sons	799 0 0
Bulled, E. P., and Co. (accepted)	779 0 0
For machinery :—	
Summerscales (accepted)	583 12 0

FARNHAM, SURREY.—For a steam road-roller for the highway board :—

Aveling and Porter, Rochester	£328 0 0
Wallis and Stevens, Basingstoke*	288 0 0

* Accepted.

FOLESHILL.—For the erection of board schools :—
Garlick and Co. (recommended for adoption) £2,8[illegible]0 0 0

FOLKESTONE.—For rebuilding to wider span the gi bridge carrying the South-Eastern Railway lines Radnor Park-road, for the town council, the Kent co council, and the South-Eastern Railway Company :-

Shaw, M. T., and Co.	£7,581 0
Ridley, T. D.	5,719 0

(Engineer's estimate, £4,000.)

FRADDON, CORNWALL.—For the erection of bus premises and cottages at Fraddon, near St. Columb-station. Mr. W. J. Samble, of Fowey and Par, a tect :—
Julian, J., Truro (accepted),

KENNINGHALL, NORFOLK.—For works of repair painting to the board school :—
Kettle, A. (accepted).

KENNINGTON, E. KENT.—For the erection of a h for Mr. S. Williamson in Church-road. Mr. Jeffery, M.S.A., architect :—

Knoch, H., Ashford	£410 0
Wood, J. Ashford	400 0
Peters, W. G., Kennington (accepted)	400 0

LINCOLN.—For the supply of wood blocks for s paving, each 9in. by 4½in. by 3in., for the city counc
Burt and Roper (accepted), 96s. per thousand.

LINCOLN.—For alterations and additions to the Cl House, Lincoln, for the committee. Mr. W. Wat F.R.I.B.A., architect :—

Wright, W., and Sons	£1,390 0
Close, H. S. and W.	1,294 0
Otter, M., and Co. (accepted)	1,267 0

All of Lincoln.

LONDON.—For alterations to the Coach and H 4, Dover-street, Piccadilly, for Mr. G. Marshall. M Seckham Witherington, F.R.I.B.A., 79, Mark-lane, architect :—

Drew and Cadman	£1,597 0
Laing, D., and Son	1,595 0
Lark, W. G., and Son	1,530 0
Kearley, C. F.	1,498 0

LONDON.—For alterations and additions to the shops at the workhouse, Marloes-road, W., fo Guardians of St. Mary Abbotts, Kensington. Mr. Aldwinckle, F.R.I.B.A., 2, East India-avenue, Le hall-street, E.C., architect :—

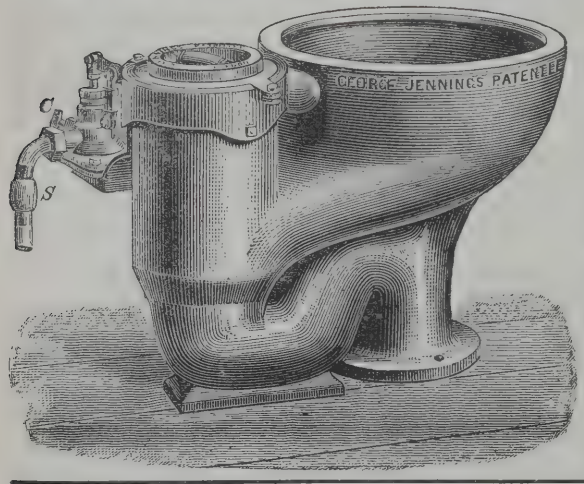
Williams and Richards	£978 0
Flow and Co.	949 0
Johnson, W., and Co., Limited*	875 0

* Accepted.

LONDON.—For the completion of warehouse pre Nos. 35 and 37, Hoxton-street, N. Mr. F. G. Gri 9, Old Jewry-chambers, Cheapside, E.C., architect :

Voller, F.	£520 0
Lea, H. and E.	495 0
Courtney and Fairbairn	473 0
Pocock, J.	433 0
Watts, C. (accepted)	398 0

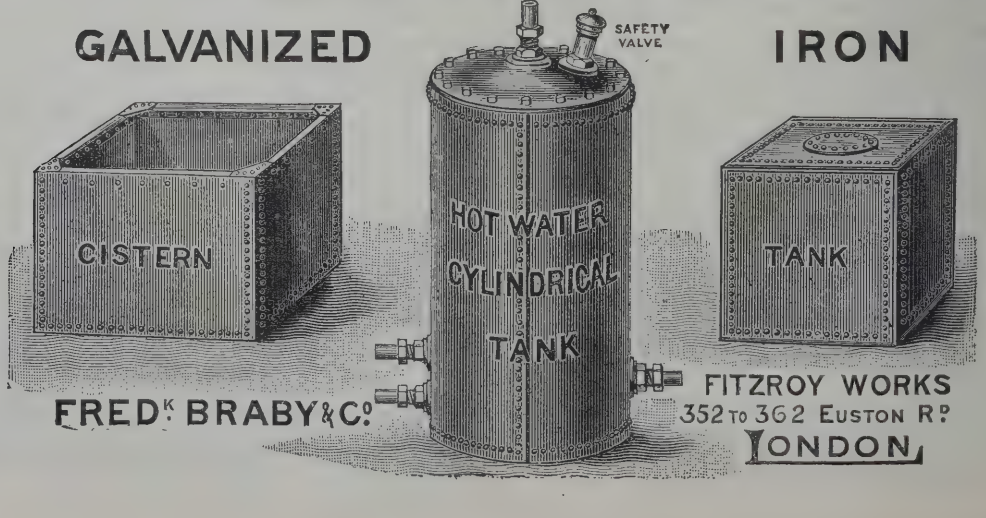
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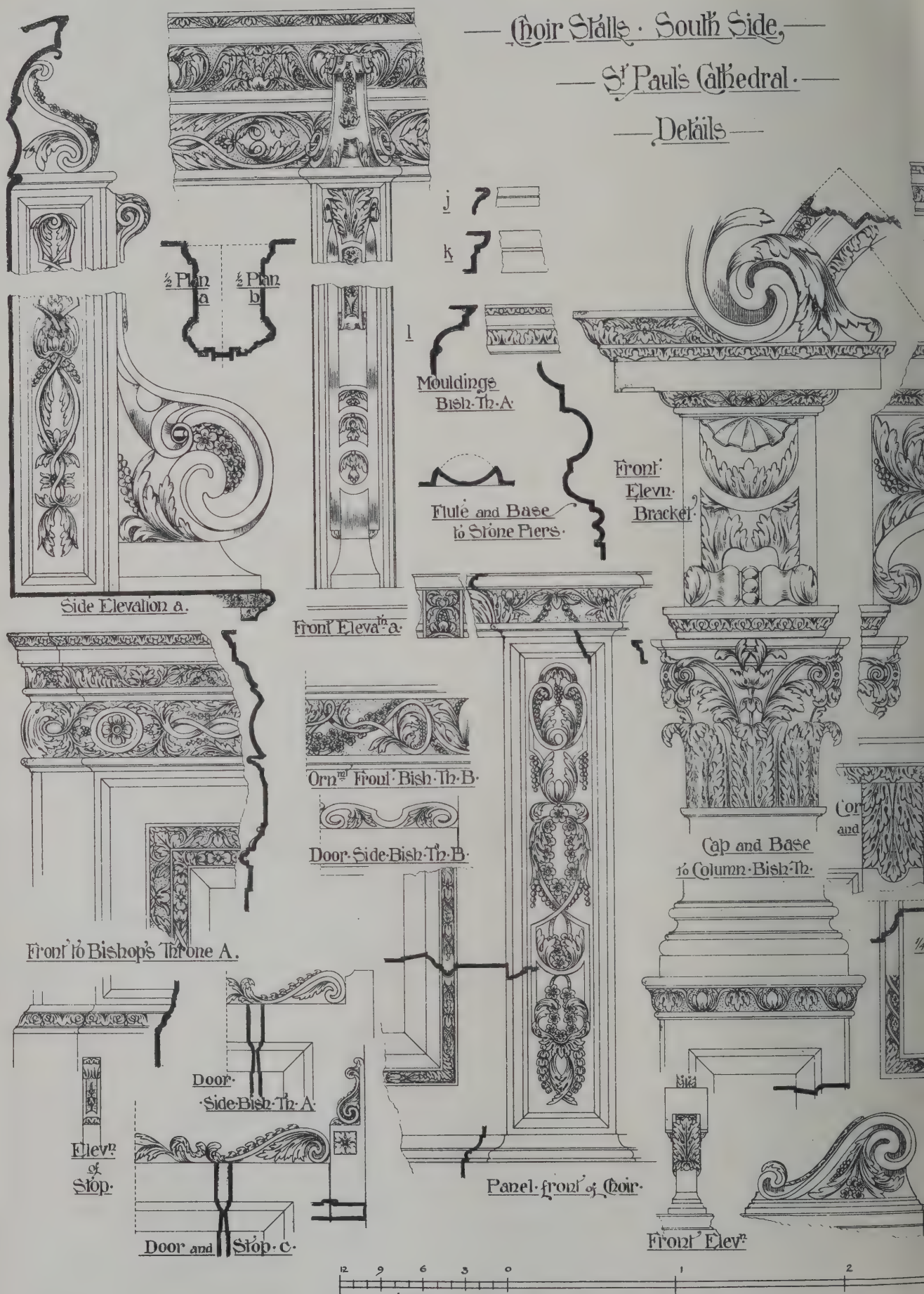
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— Drawing No. 2. —

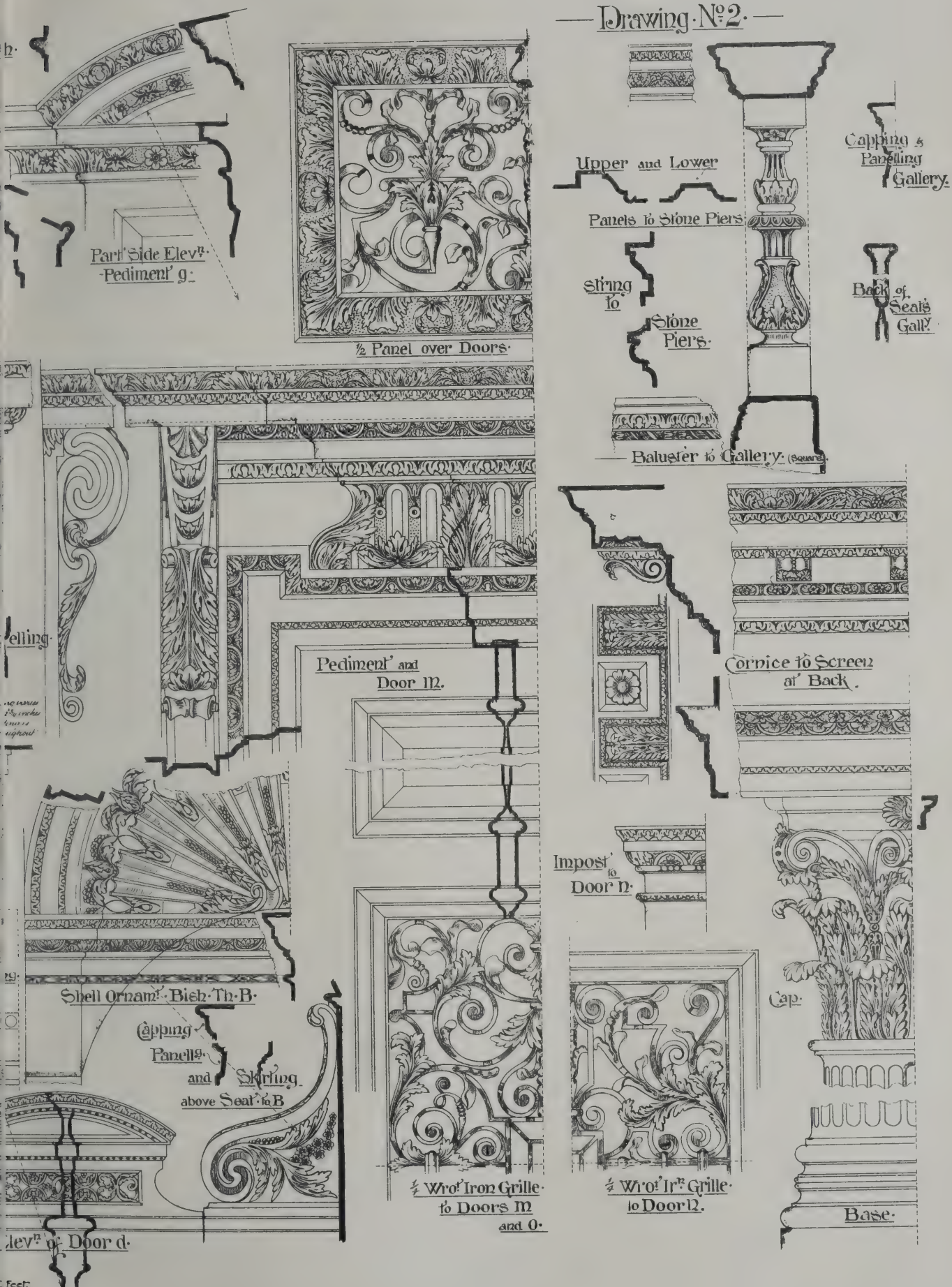
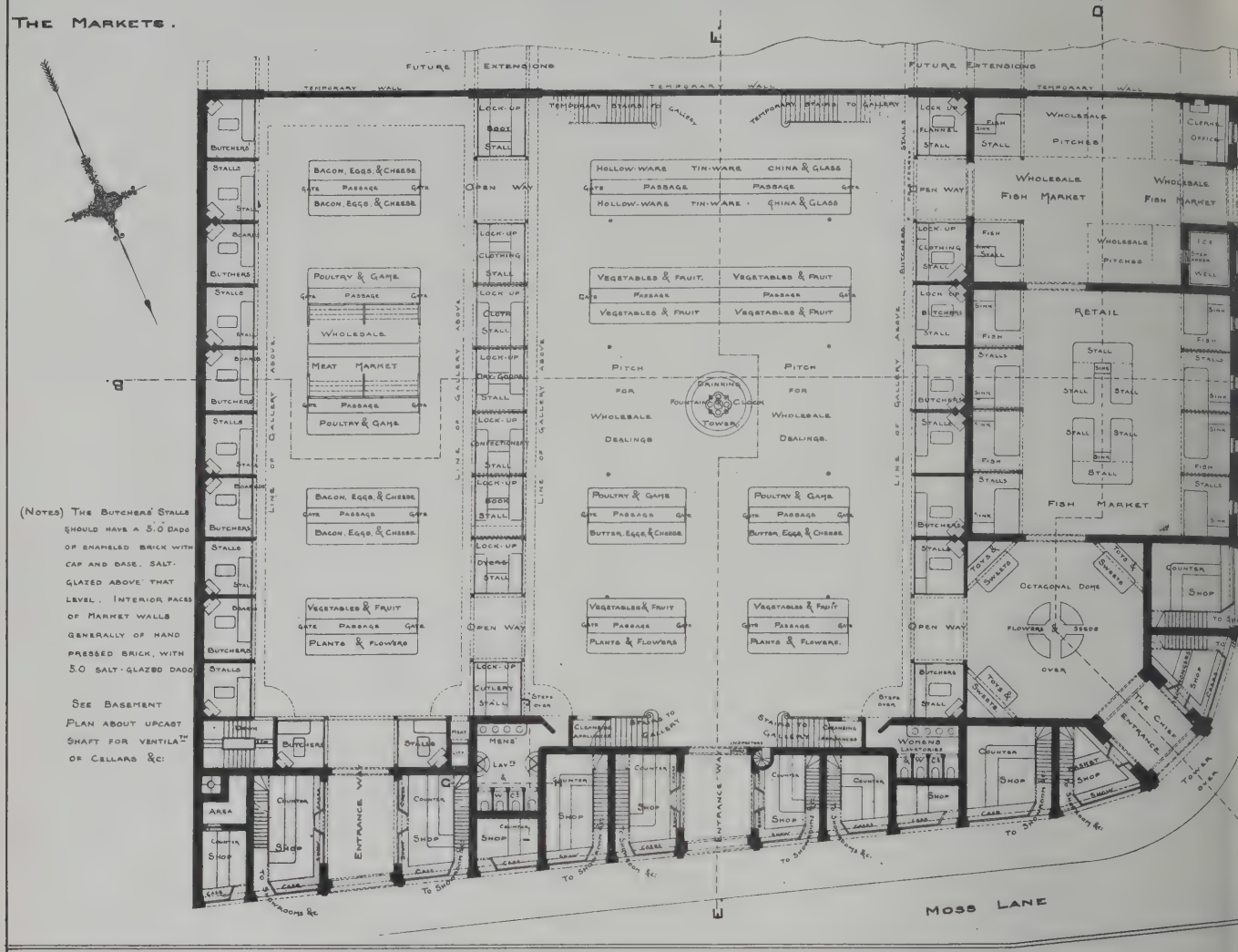


Photo Lithographed & Printed by James Akerman, 6, Queen Square, W.C.

THE MARKETS.

THE GENERAL OR GROUND FLOOR PLAN.



(NOTES) THE BUTCHERS' STALLS SHOULD HAVE A 5.0 DADO OF ENAMELED BRICK WITH CAP AND BASE. SALT-GLAZED ABOVE THAT LEVEL. INTERIOR FACES OF MARKET WALLS GENERALLY OF HAND PRESSED BRICK, WITH 5.0 SALT-GLAZED DADO.

SEE BASEMENT PLAN ABOUT UPCAST SHAFT FOR VENTILATN OF CELLARS &C.

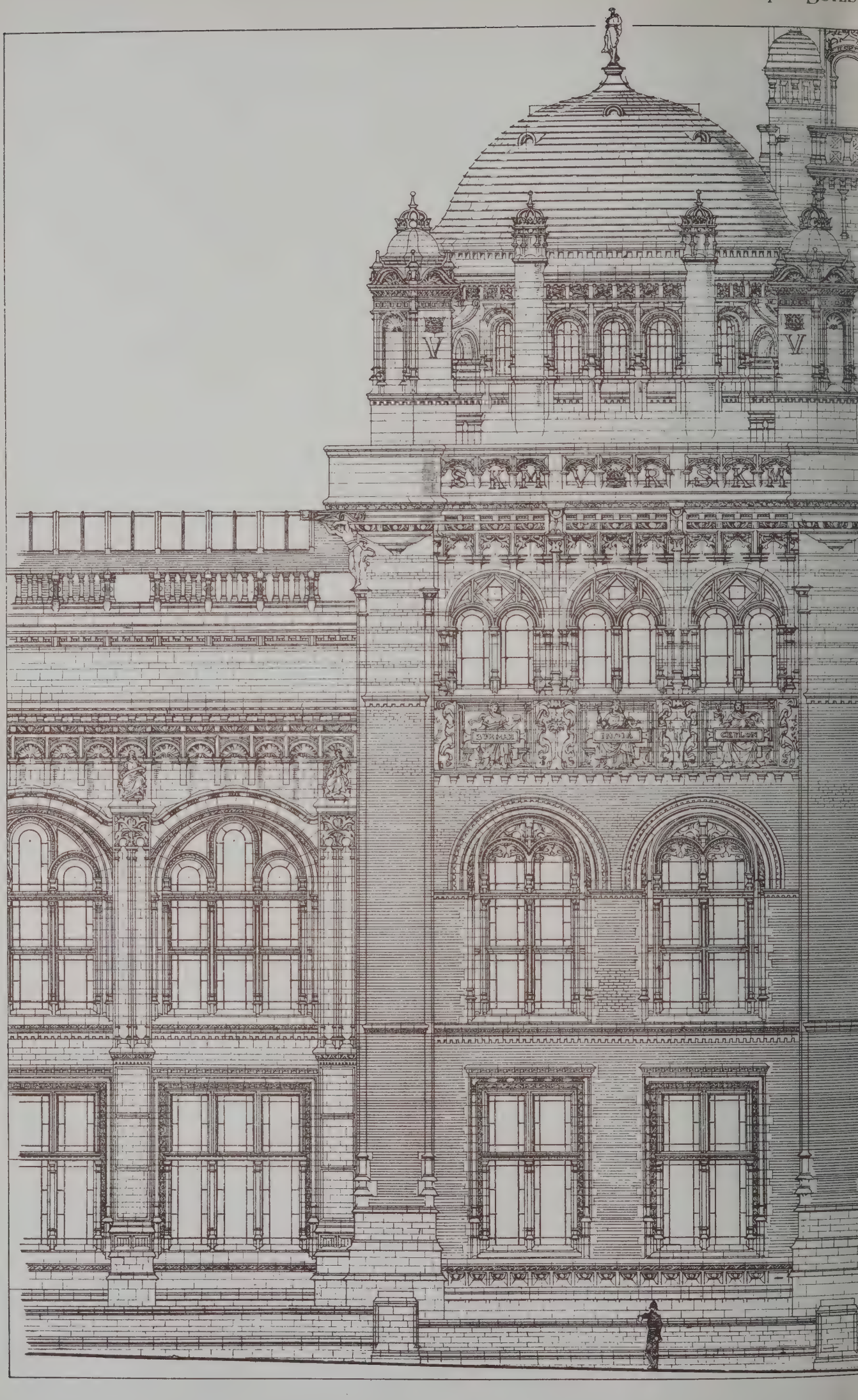


COUNTY BOROUGH OF BURY.

SELECTED DESIGN for proposed NEW MARKETS and ABATTOIRS,
TO BE ERECTED BY THE CORPORATION.
ARCHIBALD NEILL, ARCHITECT.



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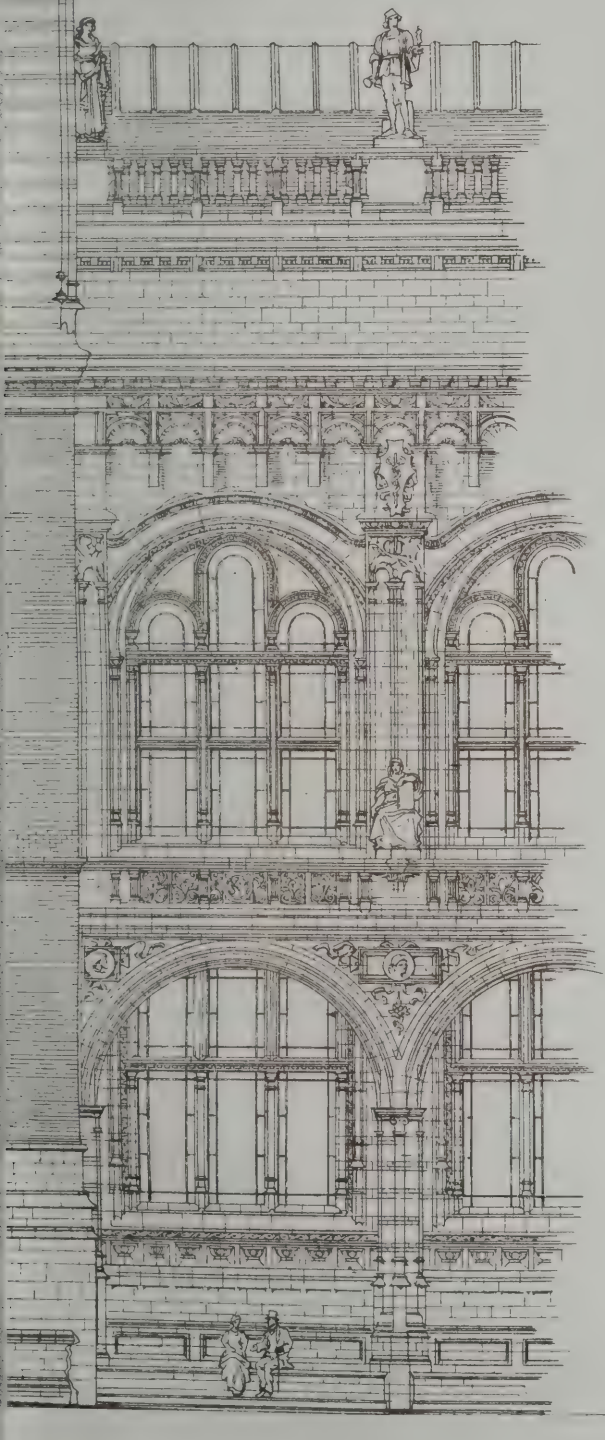

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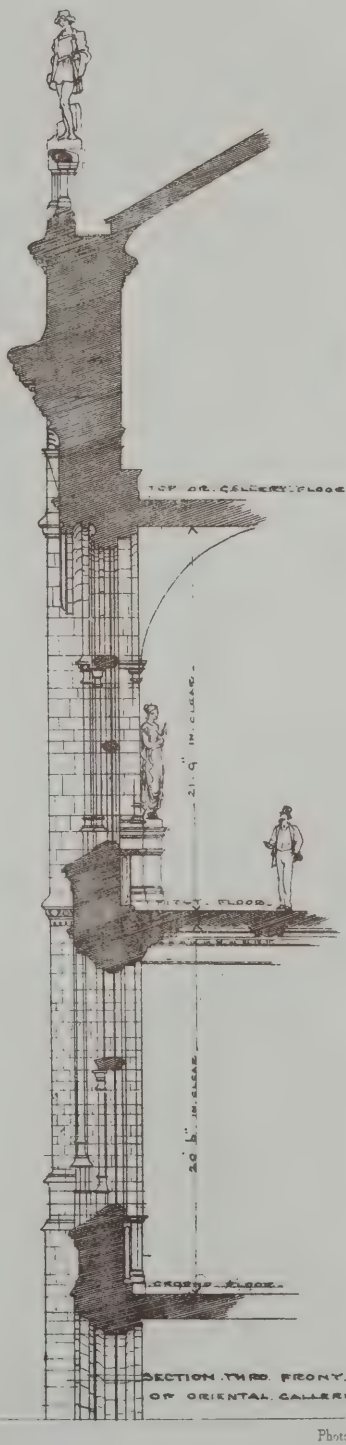
- DETAIL - OF - A - PORTION - OF - THE - PRINCIPAL - FRONT -

- ELEVATION - AND - SECTIONS -

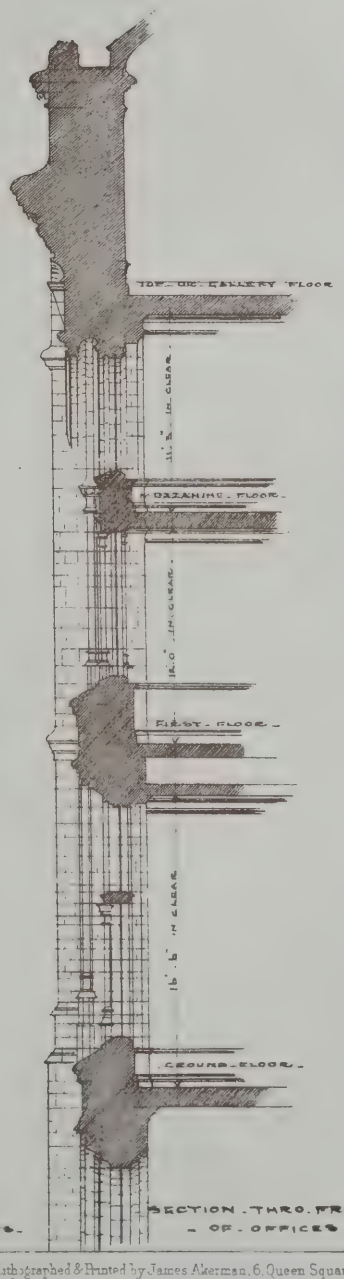
SELECTED DESIGN FOR SOUTH KENSINGTON MUSEUM BUILDING.

ASTON WEBB, ARCHITECT.





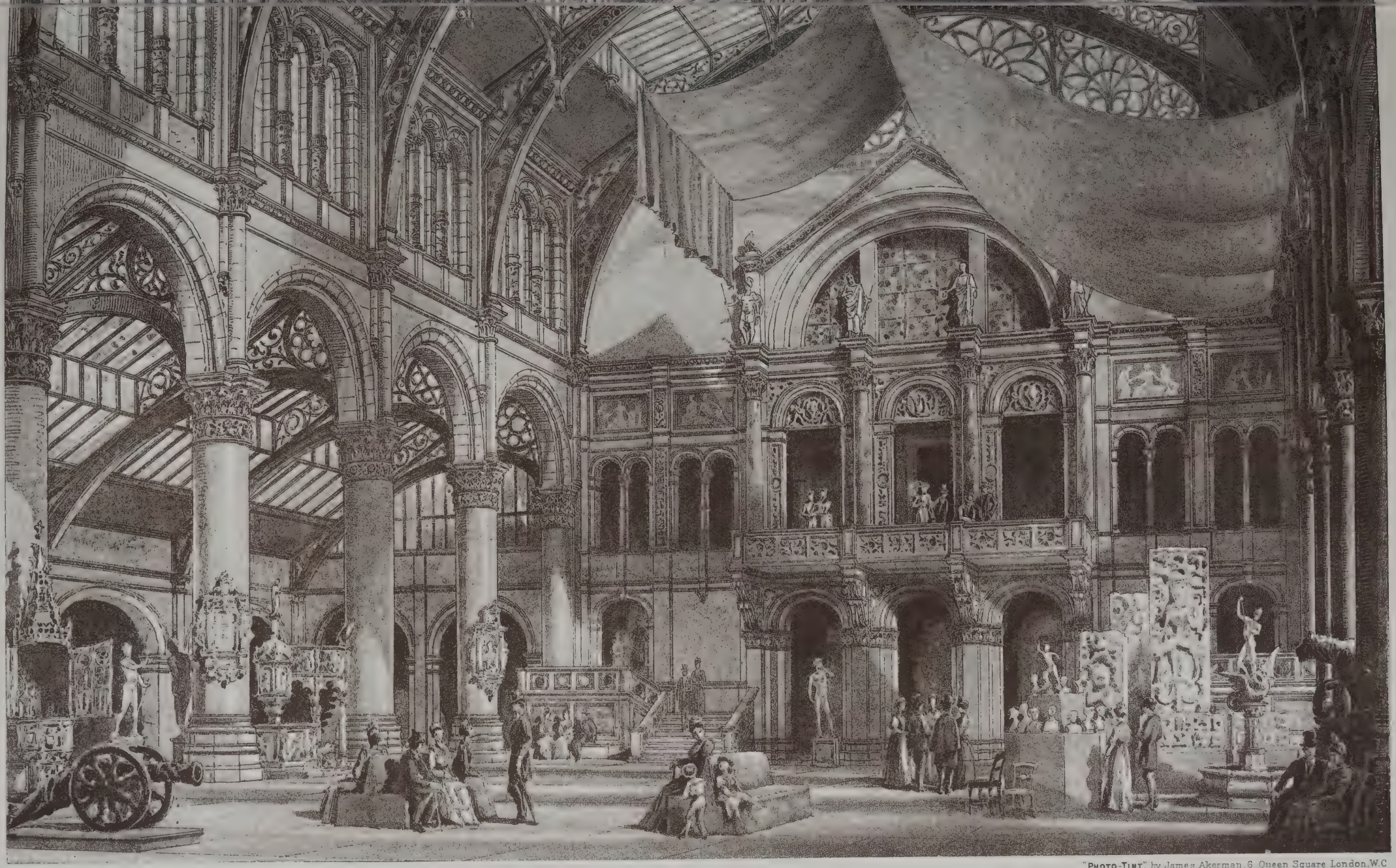
SECTION THRO. FRONT. OF ORIENTAL GALLERIES.



SECTION THRO. FRONT. OF OFFICES.

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SOUTH KENSINGTON MUSEUM COMPETITION, INTERIOR OF CENTRAL COURT.

DESIGN BY T.G. JACKSON, M.A. ARCHITECT.

[E BUILDING NEWS
ND ENGINEERING JOURNAL.
VOL. LXI.—No. 1915.
FRIDAY, SEPTEMBER 18, 1891.

CONTRIVANCE IN PLANNING.

TILFUL planning has not been regarded as an art by English architects, and has equently received far less attention as a cular branch of study than the ortho- hical design of buildings. One reason his neglect is that art has been more rally associated with the elevation or nal architecture; another, that the onic mind, being eminently practical in abits, has turned its attention to utility f primary importance. Fergusson, in nteresting handbook, has instructively n the connection of the history of archi- re with the four great races of mankind, Turanian, the Semitic, the Celtic, and Aryan, and it is as well to bear this ion to ethnography in mind. We all that the mental peculiarities and ous predilections of these races have materially influenced the development architecture, as indeed of all the and religious creeds, and it is ny of notice that all great archi- tres have been mainly developed by rst three of these races—the Turanian, emite, and the Celt. Both the Turanian he Celt were great temple builders and tects, as we know from the remains of t and India. They possessed a high of form and colour. The same sense portion and symmetry distinguishes the nes or Greeks, in whose blood there ertainly an infusion of the Turanian or We may be sure of one thing: that ic plan was strong in these earlier races, practical planning and design were ties which marked the Aryan. What ean is, that the artistic function of plan be attributed to a race which is not gly represented in this country, and the xture of Aryan blood has predisposed English architect to look at archi- re as only a practical art, and that fore planning, as an artistic study, been disregarded. The Turanian or was always artistic, as we know from rt and poetry of Arcadia, while the n was prosaic. Plan has been quite uch affected by these influences as

prevalence and persistence of Gothic is country has contributed much to plan a subsidiary means of effect. rn Gothic architects, by studying pic- ue grouping, have made their plans to heir external design. Many notable tions to the rule may be cited, as in 's Houses of Parliament, Mr. Water- 's Manchester Town-hall, Street's Law s; but the general tendency of Gothic been to place utility of plan before c arrangement, and to ignore any ple of planning. If we take instances recent competitions for public build- it is obvious to anyone who has ned the designs submitted that the est plans have generally accompanied cal or Italian Renaissance designs. er observation will be made. The plans have not been the work most skilful artist. While Mr. A roduced by far the best and most arrangement, his elevations are and poor in detail. On the other the artistic elevation or perspective of y a man who has sent in a very ill- l plan, with badly lighted corridors hurried scheme of arrangement, as if n was commenced at the last moment. This strange anomaly or inconsistence is only to be explained by the fact that invention in planning is not always accompanied by a corresponding ability to conceive an artistic elevation, though, as a matter of fact, it will be found that the lack is not being able to express the external design, and due to imperfect education as an architectural draughtsman, rather than to want of natural ability. All the time and labour have been given to the plans, and, conscious of a good scheme, the author neglects what he considers of less importance. Unfortunately, this consciousness of inherent merit is lost. An unappreciative committee or a superficial public do not recognise it. A clever perspective wins where a truthfully drawn elevation is passed by. Those who know the "ropes," however, manage things differently. If they have made a good "hit" in the plan they retain the services of an expert draughtsman, and the design has then a double chance of winning.

What are the principles of good planning? Does it consist in some good luck in hitting upon an arrangement that is happy and economical—a kind of fortuitous working out of a puzzle which comes to one only a few times out of many? A great many would appear to think so—that it is quite a matter of chance or luck. Others will admit that clever planning is a gift; that Mr. "Knack" has a head for arrangement; his plans are always clever—an admission which recognises that there is a knack in planning, as there is in chess-playing or draughts, and this knack is another name for discerning rightly, seeing at a glance what is needed, and the best way of doing it. The born "plannist," in fact, like the born artist, has the power of arranging: he can distribute his rooms or departments in proper relation to each other, and has the skill of placing them in some method that appears simple and direct, and at once commends itself even to the brother competitor, who readily acknowledges, if he is frank, that he has been beaten. The question immediately occurs, What are those methods or principles which the skilled planman at once perceives and works upon? We do not affirm that skilful planning can be taught by any set of rules, as this is impossible; but there are some principles to be found observed in all good plans. What these are we will endeavour to point out.

The best instruction in plan-design is that of examining a number of designs for any kind of building, such as we meet with in a competition. By comparing the good and the inferior plans, we begin to discover what the strong points are in the good and the weak points in the mediocre plans. We shall find invariably that the poor plans are distinguished by looseness; that they are rambling and straggling; the corridors are long and crooked; the apartments thrown here and there without any connection. The salient mark of the good plan is invariably compactness and coherency. Again we look further. We find a method in the clever plan. If there are principal rooms or departments they have been consigned to positions having some distinct relation to the site; they are prominently located along some axis, or brought to play an important part in the general design. The inferior plan has no such method or principle apparent. Comparing again the plans, we find a waste of ground in the inferior set. Here there is a large space wasted in a corridor or area; but perhaps the entrance is cramped. If the site is irregular, it is ten chances to one the author has lost space along the curved or oblique boundary, that the blocks are made to follow the boundaries, and that the angles are not at right angles. The expert plannist has taken care to make his main frontages, if possible, square, so that the main walls should be parallel, and this he does because he knows the bad effect of crooked roofs and towers if their sides appear so on main façades.

These, at least, are some of the characteristic differences which distinguish weak from strong plans, and we may here resolve them into certain well-defined principles. I.—Compactness or coherency. By this we mean that there should be no waste space in entrances, corridors, or areas; that corridors and passages of communication should be shortened as much as possible; that the main apartments should be near to and have easy and direct access from the entrance hall; that the other apartments should be so arranged that no more additional walls should be made than are absolutely necessary, and the subsidiary offices be made as coherent to the main rooms as possible. II.—Simplicity. Under this head we may place axial distribution of the principal rooms or blocks in relation to the plan of site. Disregard of this principle is painfully manifest in competition plans. To take three or four recent instances: The Sheffield municipal offices, the site for which was a trapezium, only showed two or three attempts to make an axial arrangement. One of these we published, by Mr. Tulloch, in which the council-chamber was placed centrally, but the design of Messrs. Flockton and Gibbs was entirely planned on this principle, and showed central axes at right angles, the rooms and areas being placed in reference to them. The Bury Municipal Buildings, which are intended to be built on a triangular site, exhibited a few well-considered axial plans in which the police-court or council-chamber was placed in the central axis with the entrance. In the competition designs for the completion of South Kensington Museum, the site and requirements called for an imposing entrance and hall, and in the premiated design by Mr. Aston Webb, we have a great European court and entrance hall in the main short axis, intersected by the long axis parallel to the main road, along which are placed the lateral European courts, and at one end the Oriental court. Mr. Emerson, Mr. Collcutt, Sir T. N. Deane and Son, Mr. Jackson, and Mr. Young have all placed their main entrance and hall on a central axis, though they have not all preserved the principle in the other departments. In plans for irregular sites, this principle is rarely found, as only a few skilled in planning can see where to locate an axis with any advantage. Thus in the Southampton Free Library Competition, only one competitor has adopted this principle.

Another element is Economy (III.) How to make the most of a central hall—that is, to get as many distinct entrances to departments as possible from it—is the question? When a large hall is simply a meeting point for several corridors, it is often wasteful of space. Again, two large apartments separated by a single wall is a more economical mode of planning than to place each in a separate position. Wasteful arrangements of corridors and offices are common, and so are areas for light. But the principle of economy is only learned after some experience, and depends mainly on the principle of compactness. Much space is lost in dealing with irregular boundaries. The novice is an adept at making crooked corners and leaving spaces. He generally places his blocks parallel to the oblique sides, and in thus disposing of them creates an irregular area in the centre, spoiling the interior of perhaps a hall or some apartment. The contrary process is the course resorted to by the skilful artist. The economical designer boldly makes his main blocks parallel to one principal street or boundary of the site, or assumes an axis, to which they are made parallel. The irregular corners left between the main building and the raking boundaries are thrown out on a rear or inferior side of the area, are filled up by subordinate offices,

and are left simply as areas of triangular form for light and air.

Direct and easy access, well-lighted corridors, suitable proportions of apartments, and that architectural *finesse* which distinguishes the masterly from the crude attempt, are other characteristic elements of a clever plan, to each of which we may refer; but these are details which follow from attention to the foregoing principles.

TRADE COMPETITIONS.

TRADE competitions have become useful means of inculcating the principles and methods of design as applied to the treatment of materials. The Worshipful Company of Plaisterers have lately offered the sum of £25 as prizes for proficiency and skill in the art of plastering, and an examination is to be held by the City and Guilds of London Institute, consisting of two grades, in May next, particulars of which examinations we published in our issue of August 28th. The syllabus for the ordinary grade will consist of questions on different limes, sand, stucco, plaster of Paris, cements, and other materials used in the trade, and candidates for the Honours grade will be required to pass a written examination, and produce examples of practical work. These questions will embrace tests of quality for limes and cements, quantities of material for covering a given area, setting out ceilings for applied ornaments, running a moulded oval of certain major and minor axes, columns with an entasis on a brick or studded and lathed core, mitring coves; also description, with specimens, of either sgraffito work or modelling in stucco, besides a knowledge of other processes, such as mouldings, gesso-work, scagliola, carton pierre, &c.

The practical questions given relate to matters about which every plasterer should be a proficient. Many able men engaged in this craft are, it must be confessed, ignorant of the qualities of limes and cements, and the uses to which they should be put. A certain amount of chemical and mineralogical knowledge is very necessary in dealing with limes. Their hydraulic and non-hydraulic qualities, modes of slaking, and their admixture with sand are points which the ordinary plasterer has only a slight and "rule of thumb" acquaintance with. The artificer knows that ordinary mortar hardens by exposure to the air, partly by drying and partly by the absorption of carbonic acid; but probably he does not understand why plaster of Paris (sulphate of lime or gypsum) is so valuable for its setting or solidifying quality, or why it is so useful for moulding purposes. The gypsum burnt and then ground is anhydrous, and when mixed with water quickly takes up the water it has lost in burning, and is thereby converted into a hard substance, which expands and fills accurately the mould. Why greystone lime is better than chalk lime is also because of a chemical reason—the absorption of the carbonic acid from the atmosphere is slower. Again, the workman knows that the stronger the lime the more sand it will take, the slower the setting the harder the mortar becomes; but the *rationale* of the action is not understood. He knows the effects or results, but cares very little about the causes. Technical education is supplying this deficiency. We shall have more capable bricklayers, masons, and plasterers when these rudiments of the laws which govern their trades are known—that is, laws in relation to materials used. But there is a knowledge of other laws equally important to the master craftsman—those which relate to the design and application of materials—artistic laws, and we confine our present remarks mainly to these.

Happily the modern art of plastering is reviving, though it has scarcely yet attained the position it acquired during the 16th, 17th, and 18th centuries. We know, for instance, that the Duke of Wurtemburg visited England in 1598, and was astonished at the beauty and excellence of English plaster-work; and in this connection we may notice the eminent stuccoist John Papworth, who studied the Italian style. We have few modern ceilings that surpass those introduced by the Italian artists in buildings erected by Gibbs, Adam, and Chambers. The last century was famous for its ceilings, but many of these have of late disappeared. Those who know Audley End can study the state of the stuccoist's art in the middle of King James's reign, 1616. The grand ceiling of the large saloon, with its pendentives and elaborate friezes, are pretty well known. Crewe Hall exhibits also some remarkable specimens of decorative plaster work, which are well worth study. These and other examples, to be met with in English cities, are evidence of the considerable attention bestowed on this branch of architecture, especially by foreign artists. There is need for more of this study now. The Plaisterers' Company have instituted a useful course; students are required to make drawings of old ornamental work in stucco, besides specimens of modelled stucco. But specimens and drawings are not the only things necessary. What we require is a school of stuccoists or plasterers who have acquired the principles of their art in a practical way. The isolated specimens of sgraffito, friezes, and ceilings would be of more value if the student were required to show their relation to an actual building. Relative proportion or scale of relief can only be learned by observing the effects of height above the eye, distance, and those of light and shadow. For example, the modelled stucco-work for a hall ceiling with lantern can only be appreciated by seeing it in position. A medallion, a cartouche, or a frieze, must be modelled and seen *in situ* under the varying effects of light and shade. The plaster decorations of a dome should be taught with reference to scale; the modeller ought to be able to produce a specimen appropriate to each position, the frieze or cornice, the ribs and panel, the zones intermediate between the springing and crown, and the crown itself. These attempts might consist of mouldings simply, and ornaments showing the different degrees of relief required. At one time painter and stuccoist worked together, and were united in one person, as in the case of Pierina and Toto, who worked in stucco and in painting. Toto was engaged at Nonesuch in 1539. But this higher province of the art does not now concern us. The profession would be glad to be assured that their designs in plaster or stucco were intrusted to artists who have studied the artistic branch of their vocation, and who could assist in realising the intention of the designer by having made themselves masters of modelling, and the effects of bas, mezzo, and alto-rilievos under different conditions of distance and light.

NONCONFORMIST CHURCH BUILDING.*

By JAMES CUBITT.

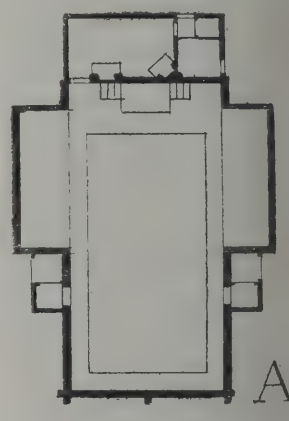
CHAPTER III. (*continued*).

2.—FORM OF PLAN.

NEXT to the question of cost, that of planning needs consideration, for on this the adaptation of the building to its purpose very much depends; and in judging of a plan, the first thing is to see whether its inventor means his building to be a galleried one or an ungalleried one. The two things usually require—though unfortunately they do not usually obtain—quite different types of arrangement, and a type that would answer admirably for the one, may miserable failure for the other.

(*a*) *Plans Suitable for Un-G Churches.*—Suppose, then, that the ch to be without galleries, or with m small end-gallery, which can be fi most forms of plan. The simplest ty plain oblong, roofed in one span, v columns. Such a structure, 60ft. lo 30ft. wide, will seat about 300 adults ground-floor area. And it is poss give beauty and interest even to a based on these simple lines. But, fo larger congregations a plain colu oblong becomes rather unmanageab rather expensive. It cannot be lengthened, or the furthest seats w too far from the pulpit. The only alte is to widen it; but a wider building r greater height, or it will look squat like, and out of proportion. And greater height, too, the side windo not be tall enough to light the cen perly. But greater height implies th for greater strength in the walls. width implies the need for greater s in the roof. Both these things and which result from them, mean e And greater height, conjoined with width, implies much greater space ov for the preacher's voice to fill, and much risk of echo and reverberation. The of all this is that a limit is soon rea the useful employment of plain columnless plans.

An easy way of adding to the cap an oblong plan, without introducing c is to form shallow recesses or trans one or both sides of the pulpit. Thi forms the oblong into an L-shaped shaped plan, or into a cruciform o



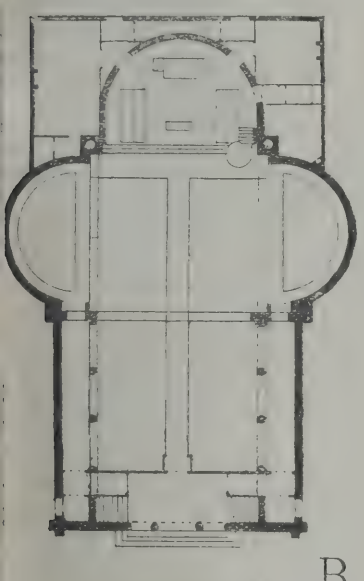
that sketched at A.* In this way the of sittings can be brought up to rather more. But the transepts sh resemble, in depth and narrowness, ancient churches. If they do, the pants are not likely to hear well. only so, but the loss of sound in the t and the reflection of the voice from the transept walls which face the will be almost sure to make the re interior an acoustic failure.

So far, it has been assumed that th ing contains no columns; and, se the absence of all obstacles to se hearing is so especially desirable in conformist church, it is natural th should ask, as they often do, why cannot be dispensed with altogether is clearly no mechanical impossibili it, for in large towns we see everywh with a wider span than that of an And it may be at once admitted ecclesiastical designs, columns ha been used where, for mechanical they were needless. Men, however live by mechanicalism alone. Mo

* The buildings to which these sketch plans with the exception of that marked B, been designs by the author.

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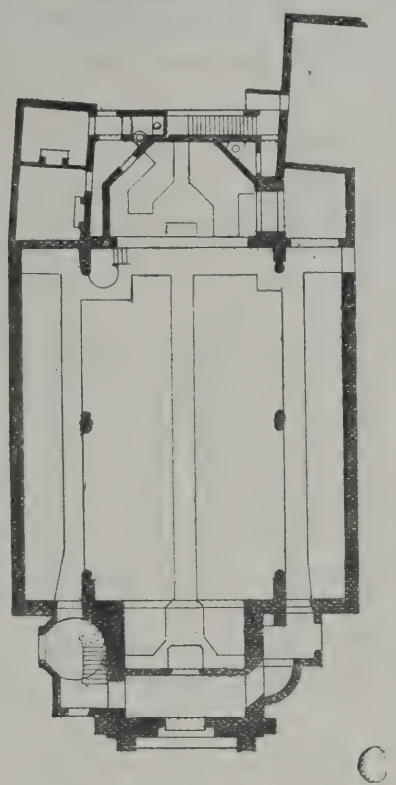
appreciate, more or less acutely, such
;s as beauty of proportion and grace of
. Were it not for this, it might seem
:al to build for a great congregation
vast unpillared ellipse, like the Albert
or some enormous one-span oblong,
St. Pancras Station. Yet, even then,
unrelieved mechanicalism might defeat
. It does not follow that where there is
)struction to sight there will be none to
l, and these great columnless buildings
a way of breaking to the ear the pro-
they make to the eye.
the other hand, it is quite possible to
olumns without allowing them to inter-
vith sight, and so used they may become
.ble aids to construction, to acoustics,
o artistic effect. The primary advantage
lumns is this—that they allow a build-
) be made wider without being made
ir. We have already seen how in a
pan church the walls need to be raised
) width increases; how the brickwork,
nasonry, and carpentry all have to be
gthened in consequence; and how the
which the voice has to fill tends to
ase much more rapidly than the area
ied by the congregation. Suppose, for
nce, to take an elementary illustration,



B

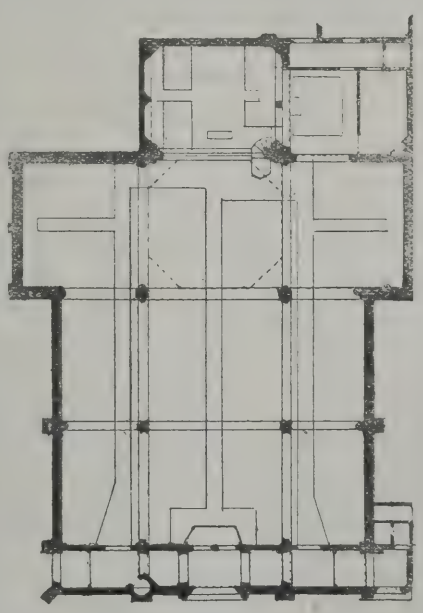
we begin with a building 45ft. long,
wide, and, on the average, 25ft. high
e. This will contain 1,125sq.ft. on the
nd floor (seating, say, nearly 200 people),
ts total contents, or the amount of air-
) which the voice has to fill, will be
,5c.ft. Now, to keep the same pro-
ions, and to seat four times as many
le, the building must be twice as long,
) as wide, and twice as high—that is,
by 50ft. by 50ft. It will then contain
)sq.ft. of floor-space, or four times as
h as at first, and will seat nearly 800
le. But its total contents, instead of
g only four times, will be eight times
) of the original example, or 225,000c.ft.
means, as regards expense, that the cost
sitting of the larger building will be
ly double that of the smaller one; and
ans, as regards acoustics, that the strain
ie speaker's voice will be twice as great,
oportion to the number of sittings, as
) is any need for it to be. If, in practice,
) results are to some extent avoided, they
voided by abandoning proportion, by not
ng the walls sufficiently as the building
ns, and by being content with a squat,
inly, and frequently ill-lighted struc-

, on the other hand, columns are intro-
d, the building can be widened without
g increased in height, and it will preserve
ie same time sufficiently lofty propor-
tions. The columns effect this by dividing the wide span into two or more narrower spans, each of which, because it is narrower, will both look and be sufficiently high. In this way, again, they assist acoustics. The larger building (which we are supposing all along to be ungalleried) need not, with



C

columns, be much higher than the small one; and thus its contents, or the cubic feet of air-space which the voice has to fill, do not increase much faster than the number of people provided for. Columns, too, if well placed, will do very much to break up those



D

echoes and reverberations from the wall-surfaces, which, more than almost anything else, render a speaker unintelligible. They greatly facilitate roof construction, by allowing two or more roofs of moderate span to be substituted for one of wide span. And they are valuable aids to architectural effect, both external and internal: in the one case, by giving apparent height, and also variety; and in the other, by doing away with the dreary, unbroken expanse of slating, and by allowing an endless variety of picturesque arrangements, which would be impossible without them.

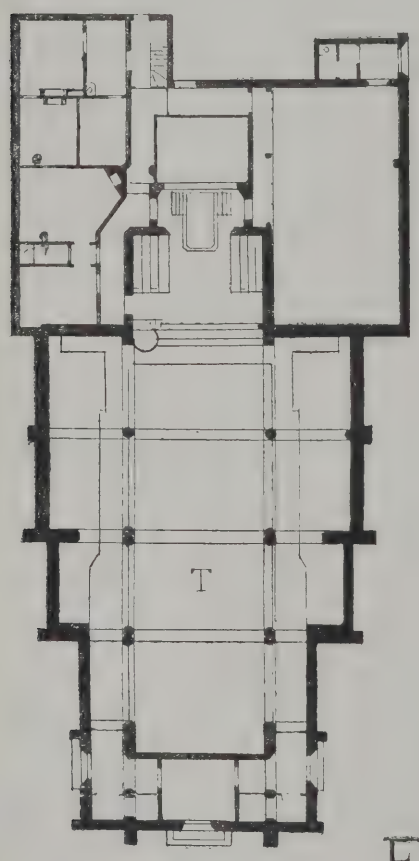
If, in our larger buildings, columns have these advantages, the question for the architect is how to place them so that they shall not obstruct the view of the pulpit. It has already been shown (in Chapter II.) that, for plain reasons of public safety, unprotected iron columns ought not to be tolerated in churches of any considerable magnitude. They require a thick casing of concrete, or of some similarly fireproof substance, and when thus cased they necessarily become large enough to cause considerable obstruction to sight. If stone columns are used, they will do the same; and, in either case, a committee, before adopting a design, should ascertain clearly from how many sittings the view of the pulpit will thus be seriously interfered with.

To find this out, it is only necessary to take the ground plan (and the gallery plan, if there is one); to stick a pin in the front part of the pulpit; from this as a centre, to rule lines touching the two sides of each column, and then continue these lines to the further end of the building. Between these two lines, behind the column, the view of the pulpit will be interfered with; and it is easy to measure, by means of a scale, how many sittings will thus be injured. Two or three facts, however, should be borne in mind. It does not matter, in ordinary cases, how much the columns obstruct the view from the alleys, or passages between the seats, since these are, or ought to be, unoccupied during the service. Even in a crowded building, where standing-room has to be provided, it is far better to provide it elsewhere, and to leave the alleys free in case of a panic. Then, again, if a number of columns stand in a row (as in the common "nave-and-aisles" plan of Anglican churches), their sound shadows usually overlap each other; and a large area is thus formed near one corner of the building, from which the minister can neither be seen nor clearly heard. But that is not so where a column stands by itself. In this case it is rather the eye than the ear that loses; and the voice will be almost as audible behind the column as in front of it.

The subject of the present chapter is "The Selection of a Design," not the invention of one; and its purpose is not so much to suggest modes in which architects may overcome the difficulties of Nonconformist church-planning, as to enable committees and others persons interested to judge for themselves whether these difficulties have been overcome in any particular case. But by way of illustration, a few more plans may be given. That marked B shows, for instance, one way in which columns may be used without being objectionable. The pews are confined to the central part of the church and to the two transepts; and the side aisles, where the columns would interfere with the view, are only used as passages. This sort of arrangement groups the congregation round the preacher, and admits of a substantial and even monumental type of building without any sacrifice of convenience. The plan marked C (which belongs to a rather smaller building than the last, though, by an accident in the photographic reduction of the drawing, it looks larger) belongs likewise to the more solid class of work, and has one stone pier and two arches on each side. Here the obstruction from one column goes down the alley, and that from the other only affects three or four sittings. There is a tower, open to the church, at the front end, its lower part occupied by seats and by an entrance porch, and its upper part by a gallery carried on stone arches and granite shafts. In this way the inside of the tower,

instead of being useless, as it commonly is in Nonconformist places of worship, forms a marked feature in the internal view of the building, and contains altogether about 120 sittings.

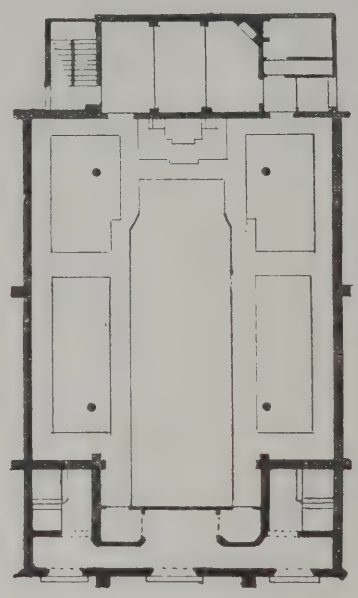
D is the plan of a church seating 900 persons on the ground floor. The expressed wish of the promoters was for something "very ecclesiastical in character," and hence a modified nave-and-aisles plan was adopted. Only four columns of hard stone and of moderate size, are introduced, so that very little inconvenience is caused by these features, though, at the same time, the division of the building into nave and aisles is strongly marked. The roof is carried, without trusses, on stone and brick transverse arches from pier to pier. There is a large central tower at the crossing of the nave and transepts, and the middle of the nave is lighted by a high clerestory. Externally, the walls are of Yorkshire parpoint, with dressings of Ancaster stone. The church is lined with a kind of buff terracotta brick, and the roofs, which, like the woodwork generally, are of pitch-pine, are covered with tiles.



E

The next sketch, E, shows the arrangement of a building planned to suit a long and narrow wedge-shaped site, lying between a road and a railway cutting. As the site widens out, the building is also widened, and double transepts are adopted, so as to give as much space as possible near the pulpit. Behind the recess for the choir is another recess for the baptistery, and behind this again, but separated by stone screens filled in with wrought-iron grilles, is a relatively large organ-chamber of considerable height. Vestries, and classroom for the use of the Sunday-school, are placed around this part of the church. There is a nave of five bays, divided from the transepts and aisles by stone piers and arches; a low clerestory, and a tower over the middle bay of the nave, at the point marked T. The roofs are carried by moulded arches of stone. Although there are six columns, each 2ft. or more in diameter, there is very little obstruction to sight from any of the pews, and the acoustic properties of the building are said to be particularly good.

Of the five plans described so far, the first is without columns, and the others have, or were meant to have, stone columns and arches. The next, marked F, is one of a cheaper type, in which the internal construction is mainly of wood. Here, however, something of a more solid and permanent character is introduced by the great arches at each end of the



F

central space, dividing off the organ gallery and the end gallery respectively; the latter arch supports a ventilating turret of brick and stone. The wooden columns, four in number, very much facilitate the roofing, both in its external and internal treatment. The ceilings are of wood. The walls are plastered inside, with moulding and piers of a kind of red terracotta.

PRICES.—XVII.*

(All Prices Include Profit).

CARPENTER (*continued*).

	£	s	d.
Gutters and bearers, &c.—			
⅝in. gutter boards and bearers... per foot super	0	0	5
1in. ditto ditto .. ditto	0	0	5½
1¼in. ditto ditto ... ditto	0	0	6⅝
Add if circular on plan ..... ditto	0	0	2½
1in. in trough gutters, no bearers ditto	0	0	4
Add for bearers	0	0	3
⅝in. valley board	0	0	3
1in. ditto	0	0	3½
1¼in. ditto	0	0	4
⅝in. flashing board.....	0	0	3
1in. ditto	0	0	3½
1¼in. ditto	0	0	4
Add fillet for flashing board	0	0	1
Add bearers for valley board.....	0	0	2½
Rebated drips..... per foot run	0	0	2
Ditto short ..... ditto	0	0	3
1in. narrow chimney gutters and bearers ..... ditto	0	0	5
1in. gusset pieces..... each	0	0	4
Extra only for cesspools	0	1	0
Ditto, dovetailed	0	1	9
Eaves boards, tilters, fillets, &c.—			
⅝in. tilting fillet, ...spiked on per foot run	0	0	0¾
1in. ditto ..... ditto ditto	0	0	1
1¼in. ditto ..... ditto ditto	0	0	1¼
1½in. ditto ..... ditto ditto	0	0	1½
1in. eaves board, 6in. wide..... ditto ditto	0	0	2
1¼in. ditto ..... ditto ditto	0	0	2⅛
1½in. ditto ..... ditto ditto	0	0	3
1in. by 3in. springer ... ditto ditto	0	0	1½
1½in. by 3in. ditto..... ditto ditto	0	0	2
1in. rough fillet ..... ditto ditto	0	0	1
1¼in. ditto ..... ditto ditto	0	0	1¼
1½in. ditto ..... ditto ditto	0	0	1½
2in. ditto ..... ditto ditto	0	0	2
Felt, &c. Dry hair felt nailed on boarding (laps not measured) ..... per square	0	7	6
Inodorous asphalted ditto..... ditto	0	7	6
Sacking felt (a thinner felt) ..... ditto	0	6	6

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Silicate cotton, 1in. thick	per foot super
Ditto, in casings for pipes, &c....	ditto
Ditto, between joists, 1½ thick...	ditto
Willesden paper roofing covering, laid complete.....	ditto
Dry, thick, hair felt, laid round pipes, cisterns, &c., and nailed where necessary—	
12oz.	ditto
16oz.	ditto
24oz.	ditto
32oz.	ditto
40oz.	ditto
48oz.	ditto
Foundation felt (see Bricklayer).	

TIMBER (large quantities only).

Fir in lintels, wood, bricks, plates, and sleepers	per ft. cul
Ditto framed in floors	ditto
Ditto ditto in roofs.....	ditto
Ditto ditto in partitions	ditto
Ditto ditto in trussed	ditto
Ditto ditto in trussed principals, including hoisting	ditto
Ditto ditto wrought one side	ditto
Ditto ditto ditto and rebated...	ditto
Ditto ditto ditto and beaded...	ditto
Ditto ditto ditto two sides	ditto
Ditto ditto ditto two rebated...	ditto
Ditto ditto ditto two rebated and beaded ...	ditto
Ditto ditto ditto three	ditto
Ditto ditto ditto three rebated	ditto
Ditto ditto ditto three rebated and beaded ...	ditto
Ditto ditto ditto all round.....	ditto
Ditto ditto ditto ditto and rebated	ditto
Ditto ditto ditto all round, rebated, beaded	ditto
Ditto ditto ditto one side and chamfered ..	ditto
Ditto ditto ditto two sides and chamfered ...	ditto
Ditto ditto ditto three sides & chamfered ...	ditto
Ditto ditto ditto all round	ditto
Add if stopped, for each angle—	
Plain stops	ditto
Pyramidal	ditto
Moulded	ditto
Add if moulded.....	ditto
If timber is cut out of balks, add ...	ditto
Ditto ditto large Memel...	ditto
Bressumers sawn down, reversed, and bolted	ditto
(Hips, ridges, &c., taken run price at the same price per foot cube as the other timber in roof).	

It is much the best and fairest way to wrought face of timber after measur framed &c., and then take chamfers, m &c., per foot run, stating whether sto number the stops with a description of t

Wrought proper door frames	per ft. cu
Rough planing	per foot su
Planing and smoothing on timber	ditto
Ditto squaring.....	ditto
Cut feet to rafters	ditto
Ditto moulded	ditto
Sprocket pieces	ditto
Purlin blocks.....	ditto
Segment heads to 4 by 3 frame	per foot ru
Cut out of the solid 4½ by 3 ditto	ditto
Ditto ..... 5 by 3 ditto	ditto
Ditto ..... 5 by 4 ditto	ditto
Ditto ..... 6 by 4 ditto	ditto
Semi-circular or Gothic ditto, glued up in thicknesses, and screwed to—	
Ditto ..... 4 by 3 frame	ditto
Ditto ..... 4½ by 3 ditto	ditto
Ditto ..... 5 by 3 ditto	ditto
Ditto ..... 5 by 4 ditto	ditto
Ditto ..... 6 by 4 ditto	ditto
Add heading joints and screws	eac

Curved struts, &c., to church roof measured at the above prices. Where are exceeded add at the same rate. T given include the cut and plain circu and all labours.

Chamfers on timbers—			
½	.....	.....	per foot ru
	Ditto	stopped	ditto
¾	Ditto	....	ditto
	Ditto	ditto	ditto
1	Ditto	.....	ditto
	Ditto	ditto	ditto
1¼	Ditto	.....	ditto
	Ditto	ditto	ditto
1½	Ditto	.....	ditto
	Ditto	ditto	ditto
2	Ditto	.....	ditto
	Ditto	ditto	ditto
⅜	Beads	.....	ditto
¾	ditto	.....	ditto
1	ditto	.....	ditto
1¼	ditto	.....	ditto
1½	ditto	.....	ditto
½	by 1½ rebates	.....	ditto
⅝	by 1½ ditto	.....	ditto
½	by 2 ditto	.....	ditto
½	by 2½ ditto	.....	ditto
¾	by 2 ditto	.....	ditto
¾	by 2½ ditto	.....	ditto

These prices include plain stops.

Pyramidal stops, add.....	each
Moulded.....	ditto

		£	s.	d.
lding on timbers—				
.....	per foot run	0	0	0¾
Ditto stopped	ditto	0	0	1
tto	ditto	0	0	1
Ditto ditto	ditto	0	0	1½
tto	ditto	0	0	1½
Ditto ditto	ditto	0	0	1½
tto	ditto	0	0	1½
Ditto ditto	ditto	0	0	2
tto	ditto	0	0	2
Ditto ditto	ditto	0	0	2½
ops, plain ¾	ditto	0	0	1½
ditto 1	ditto	0	0	2
ditto 1¼	ditto	0	0	2
ditto 1½	ditto	0	0	2
ditto 2	ditto	0	0	2½
quadrant ¾	ditto	0	0	1½
ditto 1	ditto	0	0	2
ditto 1¼	ditto	0	0	2
ditto 1½	ditto	0	0	2
ditto 2	ditto	0	0	2½
moulded in ogee or fair				
ıary ..... ¾	ditto	0	0	2
ditto 1	ditto	0	0	2½
ditto 1¼	ditto	0	0	2½
ditto 1½	ditto	0	0	3
ditto 2	ditto	0	0	3
s perforated through 1¼		0	0	2
ditto trefoil		0	0	4
ditto quatrefoil		0	0	5
ering round single holes.....		0	0	2½
ditto trefoil		0	0	6
ditto quatrefoil		0	0	8
aterœ turned and let in		0	0	9
ditto ditto		0	1	0
ditto ditto		0	1	3
ditto carved or solid		0	1	3
ditto ditto		0	1	9
ditto ditto		0	2	3
ditto ditto		0	3	0
shoes	each	0	1	0
kingheads	ditto	0	2	0
straps (not let in)	ditto	0	1	0
or fixing ¾ bolts through 4in.....	ditto	0	0	3
ditto 1 ditto	ditto	0	0	3
ditto 1¼ ditto	ditto	0	0	4
ditto 1½ ditto	ditto	0	0	4
g-bone strutting, &c., 7in. joists measured				
ght across floor	per foot run	0	0	2½
ditto 9in. joists ...	ditto	0	0	3
ditto 11in. ditto ...	ditto	0	0	3¾
ll for zinc rough chamfered	ditto	0	0	1½
ditto ditto ditto	ditto	0	0	2
dge and hip roll.....	ditto	0	0	2
irdsmouthed	ditto	0	0	2½
ditto	ditto	0	0	2¾
ditto	ditto	0	0	3
uff, bead planted, &c.	ditto	0	0	1½
ditto ditto	ditto	0	0	2
ditto ditto	ditto	0	0	2½
ditto ditto	ditto	0	0	3
her boarding—				
¼in.....	per square	0	16	0
¼in.....	ditto	0	18	0
r shooting edges	ditto	0	2	0
planing one side.....		0	2	6
ditto two sides		0	5	0
battening—				
itched and beaded on walls	per square...	0	16	6
cluding battens	ditto	1	0	0
ditto ditto	ditto	0	17	6
ditto ditto	ditto	1	2	0
ditto ditto	ditto	0	18	6
ditto ditto	ditto	1	3	0
ditto ditto	ditto	1	2	0
ditto ditto	ditto	1	6	0
ditto ditto	ditto	1	5	0
ditto ditto	ditto	1	9	6
r fixing on ceilings	ditto	0	1	6
r small quantities as to				
eads, soffits, &c.....	ditto	0	2	6
fascias—				
ot one side	per foot sup.	0	0	5
nd beaded	ditto	0	0	5½
nd moulded	ditto	0	0	6
to	ditto	0	0	6
nd beaded	ditto	0	0	6½
oulded	ditto	0	0	7
tto	ditto	0	0	6½
nd beaded	ditto	0	0	7
nd moulded	ditto	0	0	7½
angles	ditto	0	0	3
iled ditto.....	ditto	0	0	6
ar mitres	ditto	0	0	6
—				
sleeper plates	per foot cube	0	5	0
n sleeper joists.....	ditto	0	5	3
curbs, rough	ditto	0	5	9
itto planed and rebated.	ditto	0	7	0
ills wrought and sunk				
ebated.....	ditto	0	8	0
thickness rough and fixed—				
.....	per foot super.	0	0	7
.....	ditto	0	0	8
.....	ditto	0	0	10
.....	ditto	0	1	1
.....	ditto	0	1	4
....	ditto	0	1	8
....	ditto	0	1	11
....	ditto	0	2	2
hickness rough and fixed,				
r quantities—				
.....	ditto	0	0	4
.....	ditto	0	0	4½
.....	ditto	0	0	5
.....	ditto	0	0	5½
....	ditto	0	0	6
....	ditto	0	0	7
.....	ditto	0	0	8
.....	ditto	0	0	10
.....	ditto	0	1	3
ncing. Park pale fencing, 2 arris rails,				
by 6 posts 9ft. apart, tarred at feet, and				
ing all excavating, &c., and galvanised				
—				
high	per foot run	0	1	7
. ditto	ditto	0	1	9

		£	s.	d.
Oak fencing, &c.—				
4ft. high	per foot run	0	1	11
4ft. 6in. ditto and 3 arris rails ...	ditto	0	2	3
5ft. ditto	ditto	0	2	5
5ft. 6in. ditto	ditto	0	2	8
6ft. ditto	ditto	0	2	10
Add for gravel plank—				
6	ditto	0	0	8
7	ditto	0	0	9
8	ditto	0	0	10
9	ditto	0	1	0
11	ditto	0	1	2
Weathered capping studded with tenterhooks...		0	0	3
Ditto, hooks galvanised		0	0	4
Plain gates 3ft. wide 5ft. high	each	2	0	0
Ditto ditto 5ft. 6in.	ditto	2	5	0
Ditto ditto 6ft.	ditto	2	10	0
Extra posts	ditto	0	11	0
Half ditto	ditto	0	6	0
Fir weather boards and arris rails and fir posts 6 by 6 and 9ft. high—				
3ft. high	per foot run	0	1	0
3ft. 6in. ditto	ditto	0	1	1
4ft. ditto	ditto	0	1	2
4ft. 6in. ditto ditto, 3 arris rails	ditto	0	1	6
5ft. ditto	ditto	0	1	8
5ft. 6in. ditto	ditto	0	1	9
6ft. ditto	ditto	0	1	10
Add for oak gravel plank 6in. wide (see other sizes above)		0	0	8
Daywork prices:—				
Carpenter		0	0	10½
Working foreman		0	1	1
Lodgings to add, if in country.....per week		0	4	0
Allow for rail, &c.				
Materials, including cartage, in large quantities only:—				
Fir timber cut to sizes, including sawing and waste	per foot cube	0	2	0
Ditto cut out of Memel and other large balks	ditto	0	2	9
Pitch-pine timber cut to sizes ...	ditto	0	3	0
Rough deal—				
¾in., no labour .....per foot super.		0	0	1¾
3in. ditto	ditto	0	0	2½
1in. ditto	ditto	0	0	3
1¼in. ditto	ditto	0	0	3½
1½in. ditto	ditto	0	0	4
2in. ditto	ditto	0	0	5½
2½in. ditto	ditto	0	0	6½
3in. ditto	ditto	0	0	8
4in. ditto	ditto	0	0	10½
Ash, cut to sizes and delivered ..	per foot cube	0	4	6
Beech ditto ditto	ditto	0	4	9
Birch ditto ditto	ditto	0	5	0
Elm ditto ditto	ditto	0	4	0
Mahogany, Honduras ditto	ditto	0	7	0
Ditto Cuba ditto	ditto	0	9	0
Ditto Spanish ditto	ditto	0	11	0
Oak English ditto	ditto	0	4	6
Teak..... ..... ditto	ditto	0	7	0
Walnut, American, common ...	ditto	0	8	0
Ditto best	ditto	0	10	0
Cut nails	per lb	0	0	2½
Steel ditto	ditto	0	0	3
Wrought clasp.....	ditto	0	0	4
Ditto clout	ditto	0	1	0
Ditto holdfast	ditto	0	0	6
Glue.....	ditto	0	0	9
Screws, average ¾ to 1½.....	per dozen	0	0	2
Ditto ditto 1½ to 3	ditto	0	0	4
Glasspaper.....	per sheet	0	0	1
Coal tar per gallon.....		0	0	9
Stockholm ditto		0	1	4
Cartage per standard of deals from Surrey Commercial Docks to the City, including unloading.....		0	16	0
Horse, cart, and man, per hour.....		0	1	4
Sawing, not including cartage, loading or unloading—				
Fir timber 4 cuts allowed	per load	0	7	0
Ditto under 12in. 3 cuts allowed	ditto	0	7	0
At per 100ft. super.....		0	4	6
Cross cuts.....	each	0	0	6
Cartage 1s. 3d. a mile for each 50ft. cube.				
Mahogany (Honduras) under 24in deep.....	per 100ft. sup.	0	7	0
Ditto (Spanish)	ditto	0	8	0
Cedar	ditto	0	6	0
Teak	ditto	0	9	0
Sabicu	ditto	0	13	6
Yellow pine	ditto	0	6	6
Pitch pine and Kaurie pine.....	ditto	0	7	0
Wainscot oak	ditto	0	7	0
Birch	ditto	0	7	6
American ash and whitewood	ditto	0	7	0
Ditto, oak, elm, and hickory	ditto	0	8	0
Ditto, walnut	ditto	0	8	0
English and Italian ditto	ditto	0	10	0
Oak, sycamore, plane-tree, elm, ash, chestnut, and lime	ditto	0	8	0
Cross cuts, mahogany	each	0	1	0
Ditto ash	ditto	0	0	8
Breaking cuts charged in all cases up to 33in., 2½ per foot super—				
Flatting up to 4in.	per 100ft. run	0	3	6
Ditto ditto 4in. to 8in.	ditto	0	5	0
Ditto ditto above	ditto	0	8	0
Deeping fir—				
Battens 6ft. long per dozen cuts		0	1	4
Ditto 7ft. ditto ditto		0	1	6
Ditto 8ft. ditto ditto		0	1	8
Ditto 9ft. ditto ditto		0	1	10
Ditto 10ft. ditto ditto		0	2	0
Ditto 11ft. ditto ditto		0	2	2
Ditto 12ft. ditto ditto		0	2	3
Ditto 13ft. ditto ditto		0	2	4
Ditto 14ft. ditto ditto		0	2	6
Ditto 15ft. ditto ditto		0	2	8
Ditto 16ft. ditto ditto		0	2	10
Ditto 17ft. ditto ditto		0	3	0
Ditto 18ft. ditto ditto		0	3	3
Deals 6ft. ditto ditto		0	1	6
Ditto 7ft. ditto ditto		0	1	9
Ditto 8ft. ditto ditto		0	2	0
Ditto 9ft. ditto ditto		0	2	3
Ditto 10ft. ditto ditto		0	2	6

		£	s.	d.
Deeping fir—				
Battens 11ft. long per dozen cuts		0	2	9
Ditto 12ft. ditto ditto		0	3	0
Ditto 13ft. ditto ditto		0	3	3
Ditto 14ft. ditto ditto		0	3	6
Ditto 15ft. ditto ditto		0	3	9
Ditto 16ft. ditto ditto		0	4	0
Ditto 17ft. ditto ditto		0	4	3
Ditto 18ft. ditto ditto		0	4	6
Ditto 19ft. ditto ditto		0	4	9
Ditto 20ft. ditto ditto		0	5	0
Ditto 21ft. ditto ditto		0	5	3
Ditto 22ft. ditto ditto		0	5	6
Ditto 23ft. ditto ditto		0	5	9
Ditto 24ft. ditto ditto		0	6	0
Ditto 25ft. ditto ditto		0	6	3
Planks 6ft. ditto ditto		0	2	0
Ditto 7ft. ditto ditto		0	2	3
Ditto 8ft. ditto ditto		0	2	6
Ditto 9ft. ditto ditto		0	2	9
Ditto 10ft. ditto ditto		0	3	0
Ditto 11ft. ditto ditto		0	3	3
Ditto 12ft. ditto ditto		0	3	6
Ditto 14ft. ditto ditto		0	4	3
Ditto 16ft. ditto ditto		0	5	0
Ditto 18ft. ditto ditto		0	5	6
Ditto 20ft. ditto ditto		0	6	3
Ditto 22ft. ditto ditto		0	7	0
Ditto 24ft. ditto ditto		0	8	0
Ditto 26ft. ditto ditto		0	9	0
Ditto 28ft. ditto ditto		0	10	0
Ditto 30ft. ditto ditto		0	11	0

Feather-edged cutting one-third more per dozen cuts.

Pitch-pine planks one-third extra per dozen cuts.

		£	s.	d.
Flatting battens, deals, and planks, 3in. and under	per 100 ft. run	0	1	2
Dittto ditto 4in.	ditto	0	1	6
Yellow pine planks over 11in. wide.....	per 100ft. super	0	4	0

Extra cartage on 1 cut flatting, 2½d. per 12ft. 3 by 9.
Ditto ditto 2 cut 2d. per 12ft. 3 by 9.
Ditto ditto 1 cut deeping, 2d. per 12ft. 3 by 9.

Sawing and planing—					
Sawing out and planing	1¼	per square	0	2	9
Ditto ditto	1½	ditto	0	3	3
Ditto ditto, and grooving ...	1¼	ditto	0	3	9
Ditto ditto	1½	ditto	0	4	0
Planing only.....	1¼	ditto	0	2	9
Ditto ditto	1½	ditto	0	2	0
Grooving prepared boards ...	1¼	ditto	0	1	9
Ditto ditto ditto ...	1½	ditto	0	2	0
If these are not fetched away at once, but have to be stacked, extra per square.....			0	0	4
Ditto, if sticked, per square			0	0	10

Rent charged if not delivered within 6 months.

Matchboarding—					
Sawing, planing, and matching	1¼	under	per square	0	4	0
Ditto ditto.....	1½	ditto	ditto	0	4	4
Ditto ditto and beading or V-jointing	1¼	and under	ditto	0	4	9
Ditto ditto.....	1½	ditto	ditto	0	5	0
Ditto, and matching and beading both sides	1¼	ditto	ditto	0	5	9
Ditto ditto.....	1½	ditto	ditto	0	6	6

Desiccating (or drying)—

Extra on prices for sawing and preparing.—Boards sawn or prepared at mills, and in quantities not less than 200 square	at per square	0	2	2
Ditto 1¼in. ditto not less than 160 squares	ditto	0	2	6
Ditto 1½in. ditto not less than 140 squares	ditto	0	3	0
Collecting boards from docks per barge, landing and stacking in drying-room. Drying and delivering within three miles				
1in. and under	ditto	0	2	6
Ditto 1¼in. ditto	ditto	0	3	0
Ditto 1½in. ditto	ditto	0	3	6

(Time required for drying, 4 to 6 weeks varying with thickness.)

All goods drawn from docks are subject to a landing rate of 4s. 3d. per Petersburg standard on goods for immediate sawing or preparing and delivering, and 5s. 6d. per Petersburg standard on goods stored.

All goods on hand are at the owner's risk in case of fire.

The following are the number of feet to a square :—

6in. wide	200ft. run
6½in. ditto	190ft. do.
7in. ditto	180ft. do.
7½in. ditto	170ft. do.
8in. ditto	160ft. do.
9in. ditto	140ft. do.

HOT-WATER ENGINEERING.—XV.

Supply of Hot Water for Baths and Domestic Purposes.

covering tanks and pipes for the conservation of heat.

TO the practical and experienced man there is no branch subject connected with hot-water works that deserves more attention that this. To those who seek to make a hot-water supply apparatus what it is intended to be, viz., a means of transferring the water heated in the boiler to the different points at which the taps are sit-

uated without diminution of temperature, it sometimes produces a feeling akin to distress to see what a great percentage of heat is totally lost by radiation from pipes, and the tank or cylinder.

This waste of heat represents not only a clear loss of fuel, but increased labor, and, what is frequently considered of most importance, greatly decreased efficiency, sometimes a failure entirely. It hardly needs pointing out that the percentage of heat that is dissipated from pipes and reservoirs decreases the heat of the water in an exactly like ratio, and this to no good purpose whatever. It is generally in passages, casings, and, with the tank system, the roof or a cistern room that the heat is lost mostly, and in these places it is least likely to do any good. It has been frequently known that the complete covering of an apparatus (pipes and reservoir) has transformed a decidedly inefficient apparatus into a thoroughly successful one.

If the temperature could be taken as the water leaves the boiler, and then again when it has reached the top of the apparatus, there would in many cases be found a difference of 40 to 50 per cent., even when the apparatus is in working order, and the heat is not abstracted by the metal itself. Of course, it is the metal that abstracts the heat at all times, but the loss to be complained of is when the metal of the pipes is only answering the purpose of a transferring medium for the heat from the water to the air. It is sometimes thought that the passage of water through pipes for 60 to 100ft. must necessarily result in its temperature being reduced, but this is not so, no more than an engineer of steam appliances expects a noticeable loss of heat to his steam when it is conveyed in pipes. A loss would, as a matter of course, be incurred if his pipes were exposed, but they are instead always carefully coated with a poor conducting compound to avoid this loss, which almost amounts to an offence in his eyes. Undoubtedly a time must shortly arrive when a hot-water apparatus will not be considered finished if not covered everywhere to prevent loss of heat.

The material most commonly used for covering both pipes and reservoirs is hair felt. Hair is, as everyone knows, a natural poor conductor of heat and an efficient one, requiring but little thickness to effect what is required and it is not expensive. In covering pipes the sheets of felt are usually cut into strips which are wound on spirally, and securely fastened here and there with string or wire. An error, however, is commonly fallen into in using felt too thin, under the impression that the mere fact of its being the correct material is sufficient. A great quantity is sold 3-16 and ¼in. thick, and this is not enough. To really conserve the heat and only allow of the smallest possible waste, it should be ½in., and, of course, thicker than this would be even more suitable, only that too bulky a covering becomes unsightly and awkward in residence work. If the felt cannot be used in strips and wound on, then it can be rolled round lengthwise, but the appearance is not good.

A good plan, but entailing a little more labour and expense, is to cover the pipes with felt, secured with string; then to wind some strips of closely woven canvas round in the opposite direction to that in which the felt is wound, and then to secure this with wire. By putting on the covering material in sufficient thickness so that no heat is felt by the hand laid upon it when the pipes are charged with hot water, it can be taken that the least possible waste is occurring, and practically all the heat imparted to the water at the boiler will issue with the water from the taps. This is supposing that all parts of the apparatus are covered in the manner recommended, and that its construction is correct.

There is an objection raised to this hair felt in the fact that occasionally it is found to harbour insects. It is not always so by any means, and the trouble can only arise from one of two causes: either the surroundings are conducive to the appearance of these insects, or they come with the felt from the merchant's warehouse. Both causes are unusual, and no hesitation need be entertained in using this material. Those who consider this objection strongly advocate the use of slag-wool (silicate cotton), and the writer is quite ready to admit that this material is preferable, but it is difficult of application. If silicate cotton was woven into sheets of soft felt then everyone would use it in preference to hair and such animal and organic substances. Doubtless it will presently be made in this way, and we may assume that some difficulty in manufacture prevents its being prepared in this manner at present.

Silicate cotton, which is also commonly known as slag-wool, is a waste product from blast furnaces, as the latter name almost implies; it is in reality a glass wool, as the fibres are composed of silica; and as a poor conductor of heat nothing can excel glass. If a short piece of glass is held in a gas flame until one extremity is red hot, the opposite end which can be held between the fingers will be barely warm. There is no surer sign than this that a material conducts heat slowly. Of course, everyone knows that there is no material existing that is a perfect non-conductor of heat. The nearest approach to a felt in which this glass cotton can be obtained is a method in which it is prepared sewn upon canvas in strips 4½in. wide. These strips are nearly ¾in. thick, cotton and canvas together, and necessarily become more expensive than hair felt; but a covering of this material would render the pipes as nearly as possible heat tight.

These strips can be obtained from Frederick Jones and Co., Kentish Town, London, who make a speciality of this material in all forms; and sheet-iron pipe casings can be had for clipping round pipes if the loose silicate cotton is used. The loose cotton is very cheap, averaging about 12s. 6d. per cwt., with a covering capacity of 1,800 square feet 1in. thick.

The chief places at which heat is lost from pipes is in cold corridors and in pipe casings. Sometimes the idea is entertained that to encase the pipes with wood or to run the pipes in the general pipe casing that extends from top to bottom of many large residences is a good plan to conserve the heat. This idea is correct if the casing is tightly packed with some material like hair or silicate cotton, but if it is left empty the result will be considerably worse than if no casing existed, and the pipes were exposed.

To explain this clearly it must be pointed out that to introduce a heated body into a casing, or such chamber of any description, instantly converts it into a flue, having the characteristics of a chimney, which owes its draught to precisely the same cause, viz., a heated interior. Directly a pipe in a casing becomes heated the air surrounding it becomes heated also, and rarefied, and commences to rise, and cold air takes its place, which becomes heated in its turn, and so on; this creates an up-current of air in the casing precisely like the up-draught in a chimney. This, it hardly needs pointing out, is kept up at the expense of the hot water, for the inflowing cold air instantly passes to the hot pipes, robs them of heat, and escapes. An action like this has a cooling influence upon the heated water equal to placing it outdoors in a steady cold wind. The pipes would do much better without the casing.

Packing the casing, of course, obviates this, and although a casing is useful in hiding the unsightly pipes, its chief usefulness is in holding loose packing material, such as hair, sawdust, &c. It must not be thought that the up-current of air induced in a casing can be obviated by closely fitting ends, as there are bound to be fissures somewhere at which a current of air will set in; the heat itself will make them.

We have no more common and obvious proof of the sharp up-current of air that is induced by heated pipes than the black smudge-like marks that appear over pipe casings (even those that are packed sometimes); over the top edge of a cupboard door frame that has a hot tank behind it; and over hot pipes that lie against a wall, &c. This, what looks like a puff of soot, is caused by the air that is impelled upwards carrying minute particles of dirt with it, which are projected against the paint or ceiling and remain there.

It has to be pointed out that a particular objection to carrying hot pipes in the general pipe casing referred to exists in the fact that not only cold water pipes are carried there, and perhaps brought into contact with the hot ones, but these latter may come in contact with a soil pipe, and bring about an objectionable feature of another character. Sometimes men have been known to run their hot water pipes in close contact and secured to the others indiscriminately, fastening them all together with wire, for this general house casing will probably contain main, house, and water-closet cold services and soil pipe.

The most important time at which ho pipes require covering is when circumstanc it necessary to carry them outside the ho this time the covering is absolutely e and it must be done well. Usually it is casing packed with suitable material (s excellent, as most other materials absor ture very quickly), but a common fault pointed out here. If the pipes are run the wall and then encased the packing cannot be very well placed behind th between them and the wall. This woul necessary, as brickwork is as good a p ductor as any almost, but if the casing very well secured, or if the weather af woodwork, it may draw away from th trifle, and, of course, would draw a packing material with it, leaving a clear to the pipes along the surface of t Pipes run on outer walls should be kept little, that the packing material may be behind and so envelop them. If th moves a little, or fissures appear, it will matter very much.

There has been a practice of runni outside pipes within a large-sized r pipe, and then filling in around them w (another good poor conductor, being t material as the silicate cotton, but in a form). This makes a fairly good job, b pairs should ever be needed a difficult ta be experienced.

Of course, every care should be taken outside work, but it frequently become sary when erecting a new apparatus in and occupied residence. As a rule, i when the alternative is to carry pipes the best decorated rooms that they ar outside. In covering outside pipes the material should be at least 1¼in. th should always be encased. The bitte winter nights is what has to be conside

Let every engineer advocate the co the entire apparatus. Few people will the little extra expense when the advan made known. The water will remain night till morning, so that a warm b often be had before the kitchen fire lighted. The saving in coal is really g the majority of petty annoyances conne these works are never known. The between an apparatus covered and un really surprising. The subject, as te complete efficiency, is of much greate ance than is usually attached to it.

THE ARCHITECTURAL ASSO CURRICULUM.

FULL particulars and details of scheme of education to be inaug the Architectural Association next furnished in a little pamphlet issued b secretary, Mr. Ernest S. Gale, of Fal Fleet-street, E.C. The complete cour provided in the Curriculum extends years, and there are in every year t but distinct courses—a course of le classes, and a course in the studio. who is commencing his studies must co first year's courses before taking up t year work, and so on through the f but it is provided that a member w ciently advanced in his studies may t work at the commencement of any yea the courses are principally based on gramme of the R.I.B.A. examina "Regulations" distinctly state that i chief object of the Association to prep dates for these examinations, but to bers to fit themselves for their work as by providing the means by which supplement the training acquired in where they are engaged as pupils or The course can be extended over mor years should it appear desirable. Th of a fee of ten guineas entitles a memb the studio and all the classes and lect one year's course; but any member either the lectures or classes only studio only, on payment of fi for the year's course, and many of the courses can be taken up separately on a special fee. In each of the four ye medal and a bronze medal will be gi and second prizes on the class and l and similar medals will be awar studio side in each year for the best

st sets of drawings or designs produced in the idio during the year. The studio, as was nounced some time since, is located at 56, eat Marlborough-street, W., and the long list lecturers and instructors includes the names Messrs. Cole A. Adams, Henry Adams, H. W. rrows, Max Clark, F. R. Farrow, H. Han-k, R. Holmes, R. Kerr, J. Leaning, T. rling Lee, W. G. B. Lewis, G. T. Moody, W. Pomeroy, Lacy W. Ridge, R. W. Schultz, A. Slater, R. Elsey Smith, E. Prioleau arren, and A. W. Weldon. Messrs. G. chison, J. Belcher, Basil Champneys, Ernest orge, T. G. Jackson, E. J. May, E. W. untford, Aston Webb, and A. Waterhouse ve consented to act as visitors at the meetings the studio for the criticism of drawings. ose desirous of further information as to the ication now so successfully launched should lress their letters and inquiries to Mr. E. S. le, at Falcon-court, E.C.

ARCHITECTURAL PHOTOGRAPHIC EXHIBITION.

O-DAY, at the Royal Architectural Museum, Tufton-street, Westminster, the annual ibition of Mr. John L. Robinson's A.A. ursion photographs has been opened free to public. The collection, consisting of about hundred and forty prints, illustrates the ldings visited by the Association last month Shropshire, so that it may be taken for nted how interesting and useful the assem-ge must be to all who admire old domestic rk of the quainter and richer sort. Our ent detailed account of the places visited, en when we described the proceedings,* leaves need for further remarks on this occasion. ssing briefly through the screens, after noting ne capital large views from Shrewsbury, such the Old Grammar School, now the Public rary, the Abbey Church, St. Mary's, tcher's-row, which Parker describes as the st perfect block of ancient timber shop-fronts sting in England, Hill's Mansion, both front l rear, the Market Hall in "the Square," and hitehall House, we pass a series of excel-t studies of Much Wenlock Priory, including grand ruins of the church and the perfect ient Prior's House there. The Priory Church lf presents an example of 13th-century design ich was never surpassed for beauty of detail l fitness of proportion. The Market Hall in street, with the spire of the parish church to rear, makes a well-known picture. Less niliar are Benthall Hall and Plaish Hall, two houses of rare merit, both well stocked with d furniture and contemporary woodwork, and, e Pitchford Hall, a timber-built mansion, both well cared for. Shipton Hall, another stone idence, is not so fortunate in this respect, and the days of the Georges was sadly knocked out when the interior was recast. Here Mr. binson executed a first-class group of the ursionists before the main entry. Moreton rbet and Haughmond Abbey are very nous; but their parts are uncommonly rich l interesting, and these characteristics are here ll brought out by the camera. The larger ws shown of Stokesay were not improved the rain, which somewhat spoiled the pleasure the Associationists' visit. The Jacobean imneypiece, of which Mr. Robinson has made exquisite picture, showing in reflected light ery detail of its elaborate elevation, is, how-er, perhaps the best and most delicate of the ger series. "The Feathers" at Ludlow ves little to be desired from a photographic int of view, and the pictures of Ludlow parish urch are specially clever and clear. Condover, spite of its dark red masonry, comes out pitally, and the set of big views from Chester thedral, taken by Mr. Robinson on his way me to Ireland, are a welcome addition to the llection. The smaller pictures shown from rewsbury are very comprehensive, and have nsiderable variety. No. 50, as an instantaneous idy of the main street, full of figures and ight in sunlight, is worthy among these of ecial reference, and also the same remark plies to a local police incident, No. 47, in "The uare." Wroxeter and Buildwas Abbey are lowed by some interior work of interest from nthall, Plaish Hall, and Allbright Hussey, hich latter is partly in timber and partly in ick. Acton Burnell Tomb, Church, and Hall make good subjects, and so do Battlefield and Morton Corbet churches. One of the best views is 107, giving a detail of the Chapter House portals at Haughmond. Pitchford Hall, No. 128, is also very good. Where all deserve mention, distinction becomes invidious. The collection will be on view till the first week in October.

* See Building News, Aug. 7, 14, 21, and 28, 1891.

PUBLIC CARRIAGE-WAYS ON NEW ESTATES.

TO builders and owners of estates the decision given in the case of James Edmondson and Son, builders, of North Holme, Highbury, who were summoned before Mr. Haden Corser by the London County Council for unlawfully laying-out a road, passage, or way, known as Newington Turning, as a public carriage-way in such a manner that such road or passage would not directly communicate at both ends with a public carriage-way, contrary to the 53rd and 54th Victoria, cap. 243, is important. For the County Council Mr. Buckmaster appeared, who stated that Newington Turning was a passage which varied in width from about 9ft. to 12ft., and joined two public carriage-ways. The defendants gave notice of their intention to build two houses in a certain position, their object being to widen this passage half-way down to form a carriage-way, leaving the other half of its original width. The Council served a notice upon the defendants to the effect that such alteration was contrary to provision 35 of the London Council (General Powers) Act, 1890, which provides that "No road, passage, or way which will not directly communicate at both ends with a public carriage-way shall be laid out as a public carriage-way without the consent, in writing, of the Council." The defendants had laid out one portion to the full width of 40ft., but had not continued it to the other end, or thoroughfare. It appears that this road was, to a large extent, laid out before this Act came into force, in August, 1890, while the penal notice was served about a month previously. Cross-examination elicited the fact that Newington Turning was a public footway prior to 1878, inclosed by fencing on each side. In 1889, plans and sections showing existing and proposed streets already sanctioned by the Council, and those proposed to be made and widened, were sent, and notice was given that the owners of estates intended to proceed with the formation of certain streets coloured after the expiration of four weeks from date. The plan shows the widening of the passage, and the extension of North Holme-road to meet it. The Council declined to approve of the plan, and it was returned with a request that the dimensions of the roads should be written on it. This was done, and it was then returned to the County Council to be deposited in accordance with the by-laws. The Council asked for a second plan with regard to certain portions of the roads; but the defendants declined to deposit fresh plans. The Council, in fact, rightly or wrongly, declined to approve those deposited, and it was contended by the defendants that no approval was necessary. Evidence further went to show that a public carriage-way in process of formation (Aberdeen-road) running across the top of the turning could be used for carriage traffic, and that houses are built on it. The plan, in fact, showed that if the scheme was carried out the roads will communicate with a public carriage-way. By the other side it was contended that the plan proposed was to lay out a road as a carriage-way that does not communicate at both ends within the meaning of the section. It was submitted by Mr. Buckmaster that there was no indication of any carriage-way from which this proposed carriage-way will lead, except Aberdeen-road; no indication of any intention to use the staked-out strip of land as a carriage-way until building is begun.

The magistrate dismissed the summons, with £5 5s. costs, but notice of appeal was given. In giving his judgment Mr. Corser said: "If it had been intended that all these roads should be laid out at once, then I cannot see why they should have used the word 'will' in the section running 'No road, passage, or way which will not directly communicate.' If the Act had said, 'which *does not* directly communicate, &c.,' that would have thrown on the owners of the land the burden of laying out all the streets before they could have begun to build on any of them at all." But the word "will" "assumes that something is to be done at a future time, and I must give effect to it. That seems to me to be the reasonable way of reading the section of the Act of Parliament. The owner of this land proposed to lay out another road; it happened to be a widening of an existing road or a footway, but that did not signify much; but he proposed to make a new street, which he sent word to the County Council he was going to make, to communicate with the widening of this Newington Turning, and it is laid out in accordance with his letter dated 18th October, 1889. Whether the Council have any right or not to refuse is another matter; but when they got this they got notice that this turning would be extended, and the other road—viz., the North Holme-road—would be extended if the plan was carried out. In my judgment they were wrong in saying that this Newington Turning-road and the North Holme-road would not have an entrance to a carriage-way at each end." . . . . "They had no ground for supposing, except that the fences had been removed then, that this plan was not honestly intended to be carried out, and no ground has been shown me why they should suppose so." . . . . "I am of opinion that it is not shown to me that this road will not directly communicate at some time when the whole of the estate is laid out."

This decision is reasonable. The evidence, briefly stated, was that the portion complained of was only a part of a scheme for covering the estate with houses, that when it was completed Newington Turning would be intersected by another carriage-road. which had already been staked out. On the other hand, the County Council argued that no single house could be erected unless the whole of the estate roads were made up and opened. The point in dispute is one of interest to the tenants of new estates, to all estate owners and builders, as it is the first summons under the section. On this ground a special case was granted.

PATENT REMOVABLE PARQUET.

A PARQUET that can be rapidly and easily fixed to any sort of floor, that is yet not so dependent on it as to be injuriously affected by the unevenness or liability to shrinkage of the sub-floor, and can be removed at any time, is a valuable decorative application. The patent removable parquet, manufactured by Messrs. McKenzie and Co., of 96, High-street, Camden Town, is an invention that secures all these advantages. The parquet is made in sections, which are grooved and tongued with metal, having a metallic back which gives it extreme rigidity and strength when laid. Our readers are aware that ordinary parquetry has to be glued down to the sub-floor by some adhesive composition, and nailed, the result of which fixing to the floor is that any shrinkage of the floor-boards, or sinking, is apt to split the parquet or seriously injure it. We have known many parquet floors irretrievably ruined by the system to which we refer.

McKenzie and Co.'s patent parquet is perfectly free of the sub-floor, is fixed to it by secret nails in a manner that allows any inequalities to remain without injury. The secret of the system is a combination of secret nailing and tongueing. Each square or section of a pattern has a metallic backing of great stiffness glued to it, two adjacent edges of which project about a quarter of an inch beyond the sides of square, which forms a flange, which is nailed by brads to the sub-floor. The two other sides of square are tongued by a metal tongue, which fits into corresponding grooves in the sides of adjoining squares. This system is applied to triangular and other sections of the parquet. The metallic backing insures strength, prevents the squares from splitting or sinking into hollows in the sub-floor; being impermeable to moisture it secures dryness; and lastly, it becomes the means of secretly fixing the parquet to the sub-floor. Each square is thus tongued and grooved to its fellows, besides being fixed to the floor by nails on two sides, and thus the whole parquet floor, when laid, retains a perfectly level and even surface, which cannot warp or twist under any conditions. The unseasoned boards of the sub-floor may shrink without causing the parquet floor to crack. In laying the parquet, only the borders are nailed to the floor along their back edge, the front being nailed through

the flange of metallic backing. An iron tongue is then fixed in the groove, and the squares are fitted in regular order, starting from one angle between two straight sides of room, and finishing where the chimney-breasts and recesses occur. One advantage is that this parquet can be fixed by any joiner or cabinet-maker; no planing or other preparatory process is needed to the sub-floor, and consequently labour and expense are saved.

The examples to be seen at Messrs. McKenzie's factory are varied. We see ½in. oak parquet, with the patent backing for floors to stand more than ordinary wear; but the thickness generally used is ⅝in., including the backing, and as the tongue is inserted nearer the bottom surface of parquet, there is a good substance left for wear above. Several very effective diagonal patterns made in triangular sections (as pattern No. 58 on their illustrated sheet) are to be seen for floors. The "basket" pattern, No. 50, of walnut and oak, makes a very ornamental floor, and is also adapted for dadoes, panellings, ceilings. For more ornamental patterns several diagonal arrangements, Nos. 52, 55, 56, 58, 60, 84, the hexagonal pattern No. 61, are suitable, and these can be made to any size and in any woods. The border patterns are well adapted for rooms, corridors, halls. For those who wish to adopt this patent system of parquet are recommended the "Directions for Laying and Fixing," issued by McKenzie and Co. We saw some very ornamental table-tops made of this parquet. Several of the principal West-End firms of decorators are using this parquet, including Messrs. Trollope, Gillows, Godfrey, G. Giles and Co., H. J. Cooper, Marler, and Bennett, Wylie and Lockhead of Glasgow, and several large residences are about to be laid with it, as that of Palace Court, Bayswater, designed by Mr. W. Flockhart. The prices given for patent parquet are exceedingly moderate, including laying and wax-polishing. No preparing sub-floors is necessary. The prices for ordinary parquet do not show any gain, as extra labour is entailed in preparing the floors. Messrs. McKenzie guarantee the floors laid by them on this system. The fact that the deck of an important steamer on the Clyde has been laid with the patent parquet must be mentioned. For floors and decorative panel-work the patent removable parquet leaves nothing to be desired, and that a floor laid with it can be so easily taken up and relaid is a consideration that will commend itself to everyone who is furnishing and decorating his residence.

CHIPS.

Plans by Messrs. W. and T. Wilkins, of Brecon, have been adopted for a parsonage house to be built at Llanyre, near Llandrindod.

The death is announced from Folkestone of Mr. Donald Nicoll, an ex-Sheriff of London and Middlesex, and formerly M.P. for Frome, and president of the Engineering and Sanitary Association. He was a practical engineer, and was the patentee of a safety road, to be made with granite cubes and an elastic bituminous compound in the interstices.

On Sunday a large stained-glass window, erected in the east end of Chorlton-road Congregational Church, Manchester, to the memory of the late pastor, the Rev. Dr. Macfadyen, was unveiled. The window comprises five large lights with tracery, and the theme chosen for illustration is "The Continuity of the Love of God throughout the Ages." The figures of Moses, David, John, and Paul, with the Saviour (as the Good Shepherd) in the centre, fill the lights, in the order named. The window has been designed and executed by Mr. W. G. Sutherland, Manchester, under the supervision of Mr. Alfred Darbyshire.

The Technical Instruction Committee of the Staffordshire County Council have appointed Mr. Daniel E. Jones, Professor of Physics at the University College of Wales, Aberystwith, as organising secretary and director of technical instruction in the county. The salary is £400 per annum, with allowance for travelling expenses. There were upwards of sixty applications for the appointment.

A new organ, built by Messrs. Vowles and Son, of Bristol, at a cost of £500, was opened in the parish church of Castle Carey on Sunday.

The memorial stones of a new Wesleyan Sunday-school at Wookey Hole, near Wells city, have just been laid. The building will contain a room 36ft. by 20ft., and on the basement will be three class-rooms, approached by stone stairs. The architect is Mr. R. Rowring, of Wells and Polsham, and the builders are Messrs. Dell Bros., of Wells. The contract price, exclusive of seating, is £427.

WAYSIDE NOTES.

IF that version of the affair in connection with the competition for the new hydropathic establishment at Rothesay which I have read in a contemporary be substantially correct, then there have been few things more discreditable to the architectural profession—to put the matter in the mildest light—and no greater breach of professional etiquette. It is said that three architects practising in Glasgow were invited to submit designs for the Glenburn Hydropathic Establishment, which they accordingly did. Without invitation, however, other men submitted designs, and the plan of one of these latter appearing to have taken the fancy of the promoters of the competition was selected. This is the tale, so far as I can make out. If what really happened is in accordance with the facts as here stated, every architect with an ordinary appreciation of what is right will condemn the action of the party or parties who, uninvited, submitted designs. Persons so conducting themselves can have no sort of regard for other members of their profession. So offensive indeed is this sort of boorish disregard for the feelings of others working in the same calling, that one can with difficulty believe such a version of the story. There must surely be something about this incident not explained to us—some misunderstanding or mistake on the part of the competitors, either invited or uninvited, or on the part of the promoters of the competition. Are no other facts forthcoming? Both invited and uninvited competitors might give their version of the incident in these columns, and then we should be able to judge for ourselves. Meanwhile, for my own part, I hold opinions as above given. It will be a great relief if I can say otherwise.

From Ottawa comes the news of the report of the committee charged with the inquiry into the allegations of dishonest dealings in connection with contracts, &c., let to various contractors, made against members of the Canadian Government. It is worthy of note that this Canadian committee of inquiry followed somewhat the fashion of the day, and disagreed, submitting separate and distinct reports, from the which I draw my own conclusion that many of the "jobs" the virtuous English Press so loudly denounced have happened in fervid imaginations only.

Contractors in this country are inclined to be cautious just now on account of the continued strike in the carpenters' trade; consequently, I fancy, tenders are coming out rather higher than those inviting them fondly expect. Such, at least, I gather from my own experience recently. This sort of thing is doing no good to anybody. The sooner something is settled, the better all round. Naturally one has sympathy with the men in any honest strike, and that even while holding opinions against strikes in general. I much fear that, in the present case, the builders who are refusing the men's demands are doing themselves no good, and possibly much harm. People talk about a large influx of foreign carpenters from the Continent, who with the reputed frugalness of such workmen, and other good qualities, are likely to "come to stay," if they come at all, and find permanent positions in the yards and workshops of builders and contractors. Let such people ask one or two other trades what the *present aspect* of foreign competition is—the paper-makers for instance. They will find it is the foreign employer who is the most formidable competitor. I hear already of architects talking seriously of inviting German builders to undertake contracts.

There is abroad a scheme for constructing reservoirs on the River Nile which, from the injury it would do to old Egyptian antiquities, is said to be creating no little stir with the French savants in various callings. As it is stated that the formation of these reservoirs would flood the islands and temples of Philæ, it is not at all difficult to understand the opposition men of letters and art, architects and archæologists, would offer to the scheme. The island of Philæ has long been a favourite illustration of the possibility of the truly picturesque even in a most rigid and severe, Classic and trabeated style of architecture. It is certain that the most insignificant little picture of Philæ always shows a most enchanting group of old buildings, with impres surroundings, and over all an indescribable ef of calm peacefulness attending most Nile scen Accordingly we may believe that in reality Pl is one of the most beautiful sights in the wo to rank, of its own kind, with Rouen Cathed Sta. Sophia, the Parthenon, and Taj Mahal, perhaps altogether on account of intrinsic m but owing in great part to surroundings accessories. A picture that, as we feel, gives true effect of the Philæ ruins, as seen in a embracing the island whereon they stand glimpse of Nile waters, and a peaceful eve sky, is calculated to excite a desire to behold reality, and likewise to produce a frame of m antagonistic to the construction of reservoirs would cause the island and its temples t submerged.

A reviewer of one of the illustrated maga in a morning paper says: "We are sorry to mechanical processes of reproduction used, to a limited extent, in a high-class wo Wherefore the sorrow? It seems to me tha of the most beneficial inventions of the ag matters respecting the reproduction of ar work is the very mechanical process lam by our reviewer. We may now have before us actual facsimiles of an ar work, faultless and perfect but for significant mechanical imperfections inh to the process, and which are reduced minimum with care and the employment o best kinds of plates and printing paper. Is no gain in having a facsimile of an artist's w Why, then, should we go to the picture gal to see the works of great painters whe may obtain oleographic copies thereof, mechanical" enough in their production? great development of what is called "proc engraving may have made ill times for engr —it has indeed done so, unfortunately for workers. Steel engraving, except for bank- and the like, is almost dead; while wood-engr must have greatly declined as an industry d the last few years. The latter fact we c too greatly deplore, since the beauty of a w engraving is pre-eminently *sui generis* and highest order. While, however, we may the gradually decreasing amount of engraving accomplished, we should be fair new process, and recognise its merits. Ch these is the fact that we obtain, as point above, an almost absolute facsimile of the a drawing, where, with hand-engraving, w uncertain how much to ascribe to the artis what to put to the credit of the engraver. to criticise a magazine, therefore, is alto absurd, and simply reveals a clinging t fashioned custom and prejudice.

Not to be misunderstood in my views o subject, I would explain again that I am alive to the great beauty possible in the w accomplished wood-engravers, and trust th art may never die. There are fortunately publishers and editors who have an antipa "process" work, and consequently we st a number of high-class wood-engraved il tions in books and periodicals. I believe, ever, that the number of such men ye monthly, in fact—becomes smaller, as engraver-friends pass away, and the econo process engraving demonstrates itself; an clearly apparent that the only patrons of sale wood-engraving are "parish maga and the like, whose publishers, I strongl pect, obtain the blocks secondhand. H cause for regret more genuine than th wailing of the mechanical nature of p engraving. As well object to Sir F Leighton's paintings because that artist ments have been mechanically prepared colourman. To the impartial mind, th mechanical nature of process-engraving m its chief recommendation, in that we ma have put before us—through the medium printing-press—not merely the idea draughtsman mangled and distorted by th sympathetic hand of the engraver, bu individuality of the artist, which is the life of all art. G

The Wesleyan chapel at Padgate, near rington, was reopened yesterday (Thursday enlargement and restoration, from plans by Ellison and Son, of Liverpool, at a cost o The builders are Messrs. Gibson and S Warrington.



PORTSMOUTH AND SOUTH HANTS EYE AND EAR INFIRMARY.

THIS hospital or infirmary, which we illustrate this week, is intended to be erected on the site of the present old house used as an infirmary. The out-patients' department is already commenced, the contractors being Messrs. W. R. and C. Light, of Portsmouth.

It is the intention of the Committee of Management that the other portions of the building shall be executed as funds become available. The site is a commanding one, in the old town of Portsmouth, facing the Southsea Common and the Governor's Green, with extensive views of the Isle of Wight and the Solent, the position (facing the sea) being one of the healthiest in this healthy borough.

In addition to the out-patients' department, accommodation will ultimately be provided for thirteen in-patients, with the necessary wards, day-rooms, nurses's-rooms, bath-rooms, and other usual accommodation, the kitchens being arranged to occupy the top floor.

Externally the building will be executed in local bricks of a special shade, with moulded and enriched string-courses, of Bishop's Waltham bricks, with Ham Hill stone for sills, copings, &c. The difficulties of planning have been greatly increased by the necessity of working in the new out-patients' wing and room over (now being executed) with the two existing houses, one on each side of the new wing, that now form part of the old infirmary. The sanitary arrangements have received most careful attention from the architect, who is Mr. Archibald H. Ford, Assoc. Mem. Inst. C.E., of Portsmouth.

ARCHITECTURAL & ARCHÆOLOGICAL SOCIETIES.

NORTHERN ARCHITECTURAL ASSOCIATION.—The members of the Northern Architectural Associa- held their third annual visit for the summer session at South Shields on Saturday last, when a very large and unexpected variety of work was brought before their notice. A goodly company of members assembled, and under the g of Mr. Joseph H. Morton, F.R.I.B.A., vis following works:—The Theatre Royal, wh just been redecorated and remodelled; t Board Schools in Westoe-lane; the church Michael's and St. Aidan's; the new park Lawe; the Wouldhave Memorial; th swimming baths; and the very fine a hall in connection with the Royal Hotel. the visit a steam launch was placed at posal of the members, who took advanta to run out to sea to inspect the pie southern one being just completed. To the members who had not visited South for several years, the difference in its condition and in its present was very The variety of work inspected, and the signs of progress, which will give South S prominent place among the East coast wa places, raised lively contrasts with the over the water, where a "state of stop" long been the rule. On the invitation vice-president, Mr. Morton, the members of tea at the Royal Hotel.


Old Bridge
Nidd Valley
near Hampsthwaite

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ILLUSTRATIONS.

ECTED DESIGN FOR THE NEW MUNICIPAL BUILDINGS, BURY, LANCASHIRE.—SECOND PREMIATED DESIGN FOR THE NEW MUNICIPAL BUILDINGS, BURY, LANCASHIRE.—LOYD'S BANK, CATERHAM.—DETAIL OF MR. T. COLLCUTT'S ESIGN FOR THE NEW SOUTH KENSINGTON MUSEUM JILDINGS.—PORTSMOUTH AND SOUTH HANTS EYE AND AR HOSPITAL.—OLD BRIDGE, NIDD VALLEY, HAMPSHIRE.

Our Illustrations.

W MUNICIPAL BUILDINGS, BURY.—THE SELECTED DESIGN.

E give this week the principal and side elevations and plans of the selected design for the new unicipal buildings at Bury, submitted by Mr. N. Bromley, F.R.I.B.A., of Weekday-cross, ottingham, under the motto "Donovan." ree internal courts are shown for light and air, hich, it is proposed, should be lined with white azed bricks. The main entrance gives access to e following departments: Reception, council, agistrates' private entrance, mayor's parlour, tes office, stock and mortgage, &c., water department, and the town clerk, the latter being so approached from the side entrance. The edical officer may also be reached from this trance; in fact, the same may be said of most all the departments. The side entrance ves access to committee rooms, the town clerk's partment, borough treasurer's private office, d auditors, and gives exit for persons passing rough the collection of rates offices. The rough surveyor and chief constable and gas fices, and public way to council chamber, are the incipal departments approached from the angle trance. A special entrance is provided for e weights and measures departments almost clusively, although it is useul for the gas partment on basement floor; a hoist entrance also given. A separate entrance is, of course, iven for the police-court and set of offices, but it made use of for the health department, the hool attendance, the water department (basent portion), and also for the approach to tendant-porter's house, and the kitchen, &c. van entrance is shown into police yard, with ors for shutting out the public, also for elivery of coal and goods. A staircase is own to work with each entrance, except, of urse, in the police-yard approach. The rand staircase would only be used for reeptions, council, mayor, and magistrates. The reat feature in the reception rooms is the introuction of the patent swivel door partition, hich the author has used on several occasions ith considerable success, great improvements aving recently been made in these patents. xtra dining-room accommodation can at once e obtained by throwing reception hall into ining-room by the aid of the sliding partition bove described. A supper room is suggested ver reception rooms in roof, upon a level with ne kitchens. A serving room, with hoists and aircase complete, is given next to dining-room. butler's room and store room are provided, ith good accommodation for wine, &c. It is tuated in mezzanine, over serving room and ante-room. It is thought advisable to separate this department from the kitchens. The council chamber is well placed away from the noise of the streets in the centre of the building. It is approached through the ante-room, and is situated in close proximity to the committee rooms. The committee rooms are situated close to council chamber, and are provided with doors in corridor on each side, so that a private lobby can be formed if thought desirable on any special occasion. The mayor's parlour and mayor's business room are placed side by side, a door communicating between the two; they are situated next to the town clerk, and are provided with a private cloak-room, &c. The town clerk is placed between the mayor's business room and the deputy town clerk. The borough treasurer's offices are situated on the right of main entrance, the public passing in at the side of entrance behind counter, and out again into corridor, and so away into Haymarket-street. The borough surveyor is placed at the angle of the building, occupying an important position, with oriel window at the extreme angle, so that he commands the whole of his department on either side. The gas department is situated under the borough surveyor, and has ready access to the basement (where the showroom is situated) by means of the angle entrance staircase. The water department is placed on the left of the main entrance, and possesses a private staircase down to basement, where the store room and turncock's room are situated. The turncocks have access by police-court entrances. The police-court entrance gives access to the health department, although the medical officer has also access from main entrance. A laboratory is provided in the roof, situated over attendant porter. The chief constable's offices are approached from angle entrance, and have access also from police-yard entrance. The drill-shed is situated in the centre of the building, and columns are dispensed with in carrying the floors above, so as not to interfere with the drill in any way. The police-court is set back from the street, and is surrounded almost entirely by buildings, to prevent noise from the street. The heating power proposed is steam. The style of architecture chosen is an Early phase of Renaissance, which, in the author's opinion, is well adapted to a building of this class, where the requirements are varied and all the light possible is necessary. The floors for the most part would be fireproof; but no special system is specified, as it is imperative that a careful selection in respect to cost should be made. The front elevations would be faced with a selected sample of Derbyshire stone. The whole will be placed upon a rustic basement. The roofs are covered for the most part by green Westmoreland slates surmounted where shown by ornamental cresting, and the large flats would be covered with asphalte upon concrete and iron. The internal architecture to entrance halls and staircases would be carried out to some extent in a selected sample of terracotta, the design especially lending itself to internal requirements. The council-chamber and reception rooms would be panelled in oak. The police-court, staircase, entrance, and public gallery in court would be lined with a selected quality of glazed brick, and the lavatories would be treated with the same material. Attention is directed upon the drawings to the tower above parapet line (where bird is shown) for the purpose of explaining that the portion of tower above this line is not included in the specified sum of £60,000; but a sum is included for roofing it in an architectural manner (see dotted line), to correspond with the left wing (the parapet being the same height), leaving the central turret as the leading feature, should the corporation feel disinclined to entertain the idea of erecting the tower. The additional cost of building the tower would be, with clock and chimes, the sum of £4,500. The cubic contents and schedule of costs are as follows:—Main cubic contents throughout = 1,166,262c.ft., at 10d., £48,594; roofs, chimneys, basement, foundations, prisoners' department, and suggested cloak-room, &c., = 494,722 at 6d., £12,366; total, £60,960. Deduct for suggested additional cloak-rooms, spare offices, and supper-room, not specified in conditions, say, £960; total amount of estimate, £60,000.

SECOND PREMIATED DESIGN FOR NEW MUNICIPAL BUILDINGS, BURY.

This design was submitted by Mr. Henry T. Hare, A.R.I.B.A., of 1, Oval-road, Regent's Park, N.W. The general disposition of the various departments indicated in the instructions has been followed with some unimportant modifications which the author has considered desirable. It has been endeavoured to make each department self-contained, the public office in each case communicating directly with an entrance; or, in each case of the upper floors, immediately at the head of a staircase. The corridors would thus be practically private to the officials, the public having no need to use them in the ordinary course. Special attention has been given to the concentration of offices, so that the heads in each case may have complete control of their departments. The police offices and court are placed on the Moss-lane front, the frontages to Haymarket and Market streets being devoted to the municipal buildings proper. The principal or state entrance is in the centre of the Market-street front, being also adapted for use as the main business entrance. At the same time the arrangements are such that it may, on occasion, be entirely cut off from the rest of the building, together with the state apartments and staircase, without in any way interfering with the carrying on of municipal business. An important business entrance is also arranged in the centre of the Haymarket-street front. The Borough Treasurer's department lies between these two entrances, access being had to the rates office with equal facility from either. Ample counter space is provided, and the main offices are efficiently lighted both by side and top light. The areas have in all cases been utilized exclusively for lighting corridors, lavatories, &c., the whole of the offices lighting outwards to the streets. The division of departments between two or more floors has been as far as possible avoided, in order to secure facility of intercommunication and control. With this object in view the Borough Surveyor's department has been placed entirely on the second floor. It is reached by an ample and easy staircase immediately adjoining the Haymarket-street entrance. The author is of opinion that this disposition would be found to work more satisfactorily than the division of the department suggested in the schedule, both on the grounds mentioned above, and also on the important consideration of light. The state apartments occupy the greater portion of the Market-street frontage, and, together with the committee rooms, council chamber, main entrance and staircase, are entirely self-contained. The only deviation from the suggested disposition has been in the case of the cloak rooms, which have been placed on the ground instead of first floor. This appears to be almost a necessity, as it is very undesirable that guests on the occasions of receptions should be compelled to ascend to the first floor before divesting themselves of cloaks, &c. The council chamber has been placed in the centre of the site in order to insure quiet and retirement from the noise of the streets. This apartment has been brought into close proximity to the state apartments, and, if desired, might be used en suite with them. The committee rooms are placed between the reception rooms and the Town Clerk's department, which latter occupies the greater portion of the first floor of the Haymarket-street frontage. The health and school attendance offices are entered from Moss-lane, and are also accessible from the principal entrance. Some slight deviation from the indicated disposition of rooms has been made in the health department, the inquiry office being placed on the ground floor adjoining the entrance. This appears to be desirable on the ground of directness of access for the public. The weights and measures department is provided with a separate entrance from Haymarket-street. The fireproof vaults in the basement have been placed all together, and arranged somewhat on the model of a safe deposit, having a private corridor for access. These are at the foot of the staircase communicating directly with the Town Clerk's department. Storage is also provided in the basement for general purposes and for fuel with lifts to each floor. As it is probable electricity will be used for lighting, space is provided for engines, dynamos, &c. The accommodation in the police department follows closely the arrangement suggested in the schedule. It is proposed to face the three frontages with Yorkshire stone, probably from the Huddersfield quarries; the roofs to be covered with green Westmoreland slates, and the turrets with copper. Although not compulsory, the author

would propose to make the whole of the floors and staircases fireproof throughout, constructed with steel joists and concrete. The internal courts to be lined entirely with white glazed bricks. The strong rooms would be constructed with blue Staffordshire bricks, and lined internally with glazed bricks, and the use of constructional ironwork would be avoided as far as possible. The state apartments to be panelled round, as shown, in Rangoon teak and other hard woods. The floor to be in parquetry and the ceilings in modelled plaster work. The walls in the council chamber to be faced above the panelling with Ancaster stone. Various marbles would be used in the entrance hall and staircase, in which latter polished Hopton Wood stone would also be employed. The principal corridors and entrances to be paved with mosaic. The rates office to have a dado in American walnut, in which material the fittings would also be executed. The water-closets have been arranged in all cases on outside walls, each one having a window. A separate set of lavatories, &c., has been provided to each department, and it may possibly be considered that the accommodation under this head is somewhat excessive. It has, however, been deemed necessary in order to carry out consistently the idea of self-contained departments. The whole of the drains which are within the building to be of iron pipes with caulked joints, properly disconnected from the sewers by intercepting traps, and with fresh-air inlets and ventilators carried above roofs. Inspection chambers with air-tight covers would be arranged at convenient points in the areas, thus obviating any necessity of taking up the drains in case of stoppage. This, however, would be a somewhat remote contingency, as ample fall is obtainable, and there does not appear to be any difficulty in constructing them on the most approved principles. Flushing tanks would be placed at the head of each system. Open fireplaces are provided in the rooms of all the principal officials. It is proposed to heat the building generally by low-pressure steam, with radiators where required. In the case of the state apartments the coils are placed in the basement, fresh air being driven over them by a fan, and conducted by flues to the various rooms. The system would be subdivided into several sections to give greater control and economy in working. All rooms would be provided with inlet and outlet ventilators under control of the occupants. The turrets would be utilized as extractors. This portion of the work would be intrusted to an engineer of experience in this important branch. Ample boiler power is provided in the basement, consisting of two large Cornish boilers, and a smaller one for providing hot water in lavatories, &c. The external treatment has been designed in a free rendering of modern Renaissance. As, owing to the peculiar outline of the site, each front will be seen almost from any point entirely by itself, each has been designed as a complete composition, and not dependent on the others for its effect. The author has endeavoured as far as possible to give external expression to the internal arrangements. The site does not appear to demand the introduction of a great tower, there being no point at which it would add to the appearance of the building. The author has, therefore, limited the features of this nature to turrets. No public clock is shown in the design. If this is, however, desired, it might be introduced without difficulty by a modification of the large central turret. This would be a very suitable position. The approximate cubic contents of the buildings are as follows: 1,800,000 cubic feet at 8d. per foot, £60,000. For this amount they might be erected in an adequate manner, exclusive of fittings, &c.

LLOYD'S BANK, CATERHAM.

This building is erected at Caterham Valley, opposite to the entrance of the Caterham Station of the South-Eastern Railway. The lower story is faced with red brick from Erith, the upper being executed in timber framing, with rough cast, the gables being filled in with ornamental plaster work, the roof covered with tiles from the Godinton Tile Works at Ashford. The internal arrangements provide for bank, with strong-room in basement, and the upper part provides ample accommodation for the resident manager. The internal fittings of the bank are executed in American walnut. The whole of the works have been designed by Mr. A. R. Stenning, F.R.I.B.A., of 121, Cannon-street, E.C., and carried out, under his supervision, by Messrs. J. and J. Ward, builders, of Warlingham, Surrey, at a cost of £2,350. The drawing was shown this year at the Royal Academy Exhibition.

SOUTH KENSINGTON MUSEUM COMPETITION.

This double-page shows the detail of the principal entrance of Mr. T. E. Collcutt's design with two sections. We gave the view and plans of his design on Friday, August 21st. Last week we published a similar detail of the selected design by Mr. Aston Webb, so that a comparison between the two compositions may be readily made by our readers. Some further illustrations of the more notable of the other designs will follow at an early date.

OLD BRIDGE OVER THE RIVER NIDD AT HAMPSTHWAITE, YORKSHIRE.

This bridge is situate in the beautiful Valley of the Nidd. It lies on the east side of the village of Hampsthwaite, about a mile and a half south-west from the town of Ripley, and four miles north-east of Harrogate. The exact date of the first bridge is probably unknown. The present one appears to have work of different dates in it. This sketch was taken in 1881.—E. B. Lamb.

CHIPS.

A Congregational church is being built in Waterloo-road, Freemantle, near Southampton. Messrs. Mitchell, Son, and Gutteridge are the architects, and Mr. A. Warden is the builder.

The small but interesting village church of Farmcote is about to be restored from plans by Mr. H. A. Prothero, of Cheltenham. Mr. J. A. Oakey, of Winchcombe, is the contractor.

The free library at Cardiff is about to be enlarged from plans prepared by Messrs. Seward and Thomas, of that town.

The Sheffield school board have adopted plans prepared by Mr. C. J. Innocent, of that town, for a new school to be erected at Hunter's Bar, Ecclesall-road.

M. Augustin Theodule Ribot, the well-known Parisian painter, died on Sunday evening at his villa at Colombe, aged 68 years. A pupil of the elder Glaize, all his works are characterised by a faithful reproduction of nature, even in its ugliness, and by the exceptionally dark tones. Among his masterpieces are "Les Cuisiniers," with which he made his *début* at the Salon thirty years ago, "Jésus et les Docteurs," the "Samaritain," and "S. Sébastien."

The Stafford board of guardians have adopted plans by Mr. Wormal for alterations and additions to the workhouse buildings.

A group of Sunday-schools for the Welsh Calvinistic Methodists are to be built at Splotlands, near Cardiff. Messrs. Habershon and Fawckner, of Pearl-street, Cardiff, are the architects.

Mr. E. Clavey, the late borough surveyor of Burton-on-Trent, died at his residence, St. Paul's-square, in that town, on Sunday week, at the age of 55. Mr. Clavey was appointed surveyor in 1865 and continued in that position until May, 1890. He had therefore been associated with most of the principal works of public improvement inaugurated in the borough. The funeral took place on Wednesday week, and the service in the church was attended by many members of the corporation, officials, and members of the general public.

The parish church of Llanfihangel Rhydithon, Radnorshire, was reopened last week after restoration. Mr. Stephen W. Williams, of Rhayader, was the architect, and the contract was carried out by Mr. H. Price, of Builth. The work included the pointing of the external wall with cement, and repair of the tower. The floor of the church had become badly decayed, and it has been taken out and replaced with wood blocks under the seats, while the aisle and chancel have been paved with encaustic tiles. A heating apparatus by Porritt has been placed under the floor. The wood panelling of the walls under the window-sills has been replaced by a dado of Portland cement. The old-fashioned pews were taken out, and open seats of varnished pitch-pine erected in their place. The plaster ceiling of the roof has been stripped off, and a boarded panelled roof substituted, the old principals remaining in their places. The gallery has been removed.

Bethesda Congregational Chapel, Runcorn, was destroyed by fire on Sunday. The building was erected 56 years ago, but had been refitted in pitch-pine. A gas jet left alight near part of the organ-case is supposed to have been the cause of the accident. Another chapel, that in Kent-street, Portsea, was burnt out on Tuesday, this calamity being attributed to the overheating of the stove.

NOTES FROM EDINBURGH.

It is only natural to expect that, with the c tinuous extension of the city, there sh be an increase in the estimates of its expendi in civic matters. And this has been the c but in late years it has come in a fashion nc all creditable to the parties entrusted with management of municipal affairs, the incr revealing itself to the public more or less a unexpected and dissatisfactory surprise. estimates for 1892-93 have just made t appearance, repeating the experience of for years; but with a rise unprecedented in amc —viz., £22,760, which means from 3d. to per £. This large sum is partly accounted by £9,000 deficit of last year, and it becc evident that some departments have been carelessly estimated or extravagantly carried or probably both. If we except the public and recreation grounds, there is nothing ap ciable by the public to account for the l expenditure. The chief offenders are the sani and cleaning committee, and they account their extravagance by laying it at the door of influenza epidemic, which has been virulen its attack both on the inhabitants and horse the city. Probably the parties incurring penditure in all departments are of the s mind as Baillie Colston, who thinks £1,0 mere drop in the bucket, in which case extr gant increase is easily accounted for. In s other respects the present administration been severely criticised: for their bad bar with the gas company; their own manage of the works, deteriorating the quality and creasing, instead of reducing, the cost. T has been much unnecessary expenditure in nection with Parliamentary Bills, which a more tact in management would have avoi and many are much dissatisfied with the pros of bringing in an additional water supply, w it has not been ascertained that the present su properly utilised would not be ample for years to come; and by their proposal to refuse destructors—getting rid of one nuis by the creation of another.

Something, however, has been done appreciable result. The committee who the care of providing and maintaining open sp for recreation have been doing good work. M has been excellently done to improve neglected public gardens; and the Princes-s Gardens, east and west, are models of lands gardening, and highly appreciated by the pu The N.B. Railway proposes to increase number of their rails in a way that will des nothing of the beauty of the gardens, and t will be no necessity for resorting to the ab device of hanging grass and shrubs over the way lines.

The authorities appear to have been sati with the results of the hard-wood block p ment in Princes-street, and are going to ex it. Portland cement paving has also largely adopted with the best results. St and Co. are at present laying a large area their granolithic slabs, 9ft. square, in front o Register Office, where an alteration has been r for relief of the pedestrian traffic in that qua where four principal thoroughfares conv The original parapet in front of the Reg Hcuse has been put back, and is now about from the roadway, the staircase still projec in the centre. This allows also of a slight provement in width for carriage traffic at th of Leith-street, where it has always dangerously contracted.

There is no slackening in the building tra and masons have had an advance lately to The workmen have not yet completed their parations for erecting the roof of the new co hall; but the material is forward. The W of Leith Drainage is meeting with unexpe difficulties in its way in the section bet Cawnmills and Murrayfield, and they are after eight months, at work on the north si the town.

The Antiquarian Museum is now open t public and in its new abode. It appears to oc most of the available space in the three f provided for it. The collection of speci illustrative of the Stone Period may be c immense, and to the eyes of the ordinary vi they will appear interesting. The Scottish and silver ornaments are elegant in workmar beyond what could be expected of the pe The Industrial Museum, however, will alwa the most popular, and is well patronised a times. Some alterations of arrangement



been made lately in the large hall, and new exhibits placed. One of the most interesting—architecturally—is a lofty obelisk from the ruins of Quirigua, in Central America, cast from moulds taken by Mr. Maudsly, who excavated it. It contains, on the two broader sides, a granite face and figure of the idol god, Egyptian in style; the other sides and the figure are all covered with symbolic carvings, which may be letters. It is impossible to tell whether or not it is a monolith.

The font and tabernacle rising out of it, in the church of St. Giovanni, Siena, in white marble on black marble base, has been very carefully reproduced, with all details; both are hexagonal, the font having gilt panels, illustrating events in the life of John the Baptist. Several artists have lent their hands to the original, the date of which is 1430, and the style that of the Early Renaissance. The scenes illustrated are these: The Angel appearing to Zecharias, by Della Querai; The naming of St. John; St. John preaching; St. John baptising Christ, and St. John rebuking Herod, both by Gheborti; and The head of John presented to Herod, by Michelozzi. The countenance of the king in this last panel has been admirably rendered, expressing his repugnance at the execution of his order. There is also a very odd monument to some German Elector, 1514, with the Crucifixion figure above, and three bishops below; the figures and attitudes are forcibly expressed, but all the architectural detail is of the most debased character, though no doubt executed with elaborate carefulness. Workmen are busy erecting a large cast of another of these monuments. There has been added a cast of a carved stone altar-piece of the 14th century, in St. James's Church, Lubeck. The panel composing it contains sculpture of the Crucifixion, crowded with figures, of which those of the principals are in bold relief. It is interesting to compare with this more ancient work the modern work of similar purport. G. Tinworth has a three-panel altar-piece, designed for execution in Doulton's terracotta, and the work, if it can be produced in terracotta, as shown in the cast, will stand comparison with anything of its kind. The panel to the left is called "Gethsemane," and represents the officers falling to the ground instead of apprehending the Saviour. The figure is dignified, and admirable in its expression of the countenance. The centre is, of course, the Crucifixion, called "Golgotha," and the interest is maintained by the groups of figures in the foreground in full relief, and easily recognised. The third panel is less interesting, representing the soldiers parting the garments and casting lots for the coat.

There is also erected an interesting architectural detail from the Western Doorway of Chartres Cathedral, 12th-century work, showing twin columns, with two characteristic figures wrought on them, of large proportions, and which, notwithstanding their odd and perilous position, are very gracefully posed. The minor details on capitals and mouldings are very elaborate, and practicable only on buildings of like magnitude.

The foundations for the new West Kirk are at last fairly started, all opposition being overcome, and the Mother Church of the modern city will have the reproach of being the ugliest taken away. Another and better site cannot be had without a great expense. What can be seen of the church from the level of Princes-street will be the more ornamental portion, on a level with the eye, and as the whole will fill a greater space than the present parallelogram, it will be a very conspicuous addition to the architecture of the district, and possibly throw its rival, St. John's Episcopal Church, into the shade, or be, at least, more worthy of its company.

MARKET HALL AND ASSEMBLY-ROOMS, LLANDRINDOD WELLS.

THE drawing shows the partial rebuilding and enlargement of the existing Market Hall, recently completed under the superintendence of Mr. H. L. Griffiths, architect, Newport. The contractors are Messrs. W. P. Lewis and Co., Hereford. The materials used are red brick, half-timber, and red tiles.

HONES.

THE finest whetstones known for the sharpening of fine-edged tools are obtained from Arkansas, so says Curator Merrill, of the Smithsonian Institution. In that State are beds of what is called "novaculite," which is what is scientifically known as an "altered schist." This means a deposit of a flinty nature, usually combined with limestone, the rock thus produced being changed in such a manner molecularly, by processes not altogether understood, as to supply a surface most suitable for grinding. Arkansas furnishes the entire supply of novaculite for the United States, also filling a large part of the export demand, which is very considerable. The main deposit of the material is in a single hill about 500ft. high. For the sharpening of keen-edged tools, razors excepted, this novaculite is unrivalled. It is a very beautiful stone, of snowy whiteness, and is quite costly, because it has to be cut by diamond dust, owing to its extreme hardness.

Next in point of quality for whetstone purposes is a grey, fine-grained sandstone from Orange County, Ind. It is called indifferently "Hindustan stone" or "Orange County stone." Very commonly it is made into long spikes for sharpening knives upon in the kitchen, and for this purpose it is far better than steel. Another sandstone employed for the same purpose is quarried in Cortland County, N.Y., and is called, without any reason that I know of, "Labrador stone." It is a dark grey colour.

A still coarser whetstone for scythes and other such tools is made from Berea grits, a sandstone found in the neighbourhood of Berea, Ohio. Also there are certain qualities of fine-grained mica schists—a crystalline rock of quartz and mica—which are obtained from New Hampshire and Vermont, and utilised for hones wherewith to grind tools of the bigger sort. But it must be understood that there is hardly such a thing as a whetstone quarry. Nearly every quarry from which whetstones are derived is worked chiefly for obtaining building stone, the small pieces of particularly fine grade only being utilised for making whetstones.

Three stones imported from abroad are employed in America for whetstones. The best known of these is the German razor hone, which is commonly used by barbers for sharpening their razors, and is in all probability the best substance for the purpose known. It is found chiefly near Ratisbon, Germany, in the old river bed. During the period of early geological formation the river brought down to that point mud which was deposited on the bottom. This mud varied in material from one season to another, depending upon the source from which it was derived, so that during one year it was white and during another blue. Subsequently, in the course of ages, the mud became stone, and now the white layers serve to sharpen the blades by which civilised men all over the world keep their faces clean of hair. Because the white stone is costly it is usual to back a thin slab of it with another slab of the cheap blue stone, fastening the two together with cement. Such is the ordinary razor hone of commerce. These German hones cost only a fraction of what is charged for novaculite scraps of the same size, but there is a duty upon them, which, together with the expense of transportation, renders them about as high in the market. There are two other foreign whetstones commonly used in this country. One of these is a fine-grained schist from Scotland known as the "Water of Ayr," and used much by carpenters and stone-cutters for rubbing down the surface of other stones. The

other is the "Turkey oilstone," resembling novaculite.

The stones used in this country for grindstones are mostly from Ohio and Nova Scotia, the latter supplying the best grade, which does excellently for scythes. Of foreign grindstones most come from England. Of all whetstones the most curious and interesting are those which are utilised by engravers to sharpen their engraving tools. They are of every shape imaginable, from long needle-like points to fine-edged sticks, the object being to grind the little points and edges of the steel instrument, which could not be sharpened upon an ordinary stone.

CHIPS.

The Queen's Court Bridge at Faversham has just been rebuilt at the joint cost of the Kent county council and the Faversham highway board. Messrs. Fuller and Sons were the contractors.

The foundation-stone of the new hospital for the sick poor being erected in connection with the East Poorhouse by the Dundee parochial board was laid on Saturday afternoon with Masonic honours. The new hospital, which will accommodate about 300 patients, will consist of a central administrative block, with pavilions on each side, and a separate establishment in rear for the treatment of infectious diseases. The estimated cost, including furnishings, is £25,000.

An English Wesleyan chapel is about to be built at Ferndale, Glam., from plans and designs of Mr. Walter Jones, of that town.

On Wednesday week a new Wesleyan chapel, in Beech-lane, Hartford, Cheshire, was opened. The new chapel is Gothic, executed in brick, with a spire which, when completed, will rise to a height of some 75ft. The façade is of Ruabon brick, with dressings of Manley stone. At the rear are vestries and classrooms. The interior, which will seat about 350, is fitted with pews in pitch-pine. The total cost, including architect's fees and land, is about £2,400. Mr. Richard Beckett, of Hartford, was the builder, and Mr. John Wills, of Derby, the architect.

At the last meeting of the local board of Paignton, near Torquay, a discussion arose on a recommendation by the medical officer of health, endorsed by Dr. Vickers, a member of the board, that it was desirable that the subsoil of all areas to be covered by buildings should receive a layer of concrete. Mr. J. S. Bridgman, V.P.S.A., a member, urged that in some parts a layer of concrete was unnecessary, and would involve needless expense. The chairman pointed out that the by-laws of the board required a concrete surface, and no hardship would be involved if the rule were uniformly insisted upon.

The parish church of St. Warburgh, Spondon, Derbyshire, a 14th-century structure, is about to be restored under the direction of Mr. J. Oldrid Scott, F.S.A.

The peal of six bells in Eldersfield Church, Worcester, was reopened on Tuesday after the recasting of the second and third, and the renewal of all wood, brass, and iron work about the bells, including new clappers. Messrs. Taylor and Co., of Loughborough, carried out the work.

Mr. Paul Jacob Naftel, the water-colour landscapist, died on Sunday at his residence at Strawberry-hill, aged 75 years. His sketches from the Channel Islands were exhibited at a "one-man show" in Bond-street a few years since. He was the father of Miss Naftel, the accomplished flower painter, who died a year or so since.

A Gospel hall to accommodate 500 persons is about to be built on the Whitecross Estate, Weston-super-Mare, from plans by Messrs. Hans Price and Wooller, of that town. Mr. C. Taylor is the contractor.

Mr. S. J. Smith, Local Government Board inspector, held an inquiry at Colne, Lancashire, on Friday, into the local board's application to borrow £7,987 for works of private street improvement. The application was unopposed.

At Coatbridge Dean of Guild Court, on Friday, lining was granted for a new Roman Catholic chapel to be built in Whifflet-street, to be known as St. Mary's. The building is to accommodate 900, and will cost £5,200.

A new cemetery at Alfreton was dedicated on the 10th inst. It has been laid out from plans by Mr. Houlton, surveyor to the local board.

In the Galerie Mollier, at the Louvre, has now been set up the great mosaic known as that of the Kabr-Hiram, discovered by M. Renan near Tyre, during his expedition in 1863 to Phœnicia. This vast work constituted formerly the pavement of a church dedicated to St. Christopher. The design includes decorative medallions, representing combats of animals, and episodes of husbandry, these being bound together by conventional foliage and arabesques.

Building Intelligence.

Bishopston, Bristol. — On Saturday the foundation-stone of the Franciscan Friary of St. Bonaventure's, at the top of Egerton-road, Bishopston, was laid. The first portion of the friary will form the east side of a future quadrangle. The church will be on the north side, and the south and west sides will be a continuation of the friary. The part now undertaken will consist of porch, hall, reception rooms, porter's room, study, library, and friars' cells and cloisters, which will in the future be continued to form the quadrangle. The total length of the portion now to be built will be 108ft., and the width 33ft. The style of the friary will be Domestic Gothic of the 15th century, rather severe in style, in accordance with the Franciscan rule. The building will be of local stone, with dressings of Bath stone. The first contract is being carried out by Messrs. Wilkins and Sons, Bristol, the architects being Messrs. Pugin and Pugin, of Westminster. The amount of the contract is about £3,000.

Glasgow. — The special sub-committee appointed by the town council of Glasgow to inquire into the costs and financial results to the Improvement Trust of erecting workmen's dwellings and a "family home" on vacant ground at the corner of High-street and Rotten-row, has just issued its report. The cost of the buildings is estimated at £18,100, and the cost of the site is recorded at £5,962, being £24,062 in all, the annual interest on which sum is put down at £931. It is thought that an annual revenue of £853 will be got from the shops and houses, and that the "home" will yield annually £360, after paying all expenses, the total revenue being thus £1,213, leaving an apparent surplus over the annual charge of £281. The committee recommends that the principle of the trustees themselves erecting the buildings be affirmed by the general committee, and that the matter be remitted back for further consideration.

Herne, Kent.—The restoration of Herne Church has now been completed. In 1869 the present vicar commenced the work with an expenditure of £2,000, and a further outlay of £1,000 upon the north aisle has now been made. The bays between the principal and intermediate rafters are filled in with boarding and finished with mouldings, the spandrels being carved. The carving was executed by Mr. Ratcliff, of London, and the whole of the woodwork of the new roof is made of Jarrah wood from Western Australia. The east gable has been restored to its original pitch in Chillmark stone, with parapets and new stone cross. A canopied niche has been formed in the gable, in which will shortly be placed a sculptured subject, executed by Mr. N. Hitch. The contract has been carried out by Mr. H. B. Wilson, of Canterbury, who restored the nave and north aisle of Herne Church in 1853. The architect is Mr. Francis Butler, of London.

Trowell.—The parish church of St. Helen is of considerable antiquity, with a fine tower and an Early English chancel, but the whole building needs restoration and repair. Plans have been prepared by Mr. Hodgson Fowler, and it has been decided to carry out the complete restoration at a cost of £1,520, of which £930 has been already contributed. A faculty has been obtained for the proposed alterations. The alterations in the chancel, according to Mr. Fowler's plans, are:—To remove the roof, and lower the side walls 3ft.; to raise the east gable and provide a new oak roof covered with lead; to replace the modern east window with one more in keeping with the architecture of the church; to remove the plaster from the internal dressed stonework; to replace the floor, and to erect new oak choir seats, altar table, and chancel screen. The tracery of the windows will also be renewed, internal stonework dressed, and the main timbers of the roof exposed and cleaned. A new south door and oak pulpit on a stone base, and a permanent ringing-floor in the tower, will also be included. The contractor for carrying out the alterations is Mr. Bowman, of Stamford.

According to a re-valuation recently made of the Glasgow Improvement Trust property by Mr. MacDonald, the city engineer, there is an estimated reduction of the value compared with the former valuation of £130,000. This amount falls to be added to the excess of liabilities over assets, and this now stands at £155,000.

Engineering Notes.

Manchester Ship Canal.—The work o filling the Ince section of the Ship Canal wit water was begun on Monday morning. Th section extends from Ellesmere Port to the mouth of the River Weaver, a distance of seven miles The filling process will be completed to-day (Friday), when the depth of 26ft. will be reached and a small dam separating the canal from th Weaver will be cut away, and the great sal traffic from Northwich and Winsford will then be accommodated by the Ship Canal. The letting in of the water at Ellesmere Port was accom plished by connecting the full Eastham sectio with the empty Ince section. A pipe of 90ft long and 4ft. in diameter was run through th dividing neck of land, the flow of water being controlled and regulated by a sluice arrangement Mr. Jones, agent of the section, Mr. W. H Topham, manager of the works, Mr. Price chief agent, and Mr. Fitzgibbon, resident engineer, were present at the successful operations o Monday.

The Ribble Navigation Works.—The Parliamentary Committee of the Preston Corporatio and the Ribble Committee have both decide unanimously, after consideration of the recen report of the Ribble Navigation Commission, tha it is not advisable to apply to Parliament a present for further powers; and that it would b better to watch the effect of the north training wall. It is stated that there is sufficient money in hand to complete the dredging down to depth of 5ft. below the level of 1883, to erect th north wall, and to complete the dock contrac and its equipment, thus completing the works a far as Lytham.

The St. Clair Tunnel.—Sir Henry Tyler chairman of the Grand Trunk Railway, is abou to formally open the St. Clair Tunnel, which forms a land connection between the Canadia lines and the American lines under the same management running to Chicago. Hitherto th trains have been carried over the St. Clair River —the outlet of Lake Huron—on huge ferry boats. The tunnel makes the time of transit very much shorter, and a simultaneous alteration i the routes of approach to the river has reduce the length of the line by six miles. The tunne is 6,026ft. long, or 11,553ft. including it excavated approaches. The boring of the tunne proper was done by means of Beach's wrought iron shields with sharp cutting-edges, each shield being driven forward by hydraulic rams o enormous power. From the time when the shield were lowered into position at the two propose entrances till they met in the middle of the work occupied just a year. The tunnel is 20ft. in diameter, and is lined throughout with cast-iron plates 2in. in thickness. Over 880 tons of bolt and nuts were used in constructing the lining which weighs altogether 28,000 tons. The roa bed under the river is practically level, but th gradient of the approaches is 1 in 50. Arrangements have been made for electric lighting al through the tunnel and for ventilation. The cos of the tunnel proper is given as £292,000. Mr Joseph Hobson, of Ontario, was the engineer.

The strike of the masons employed at the erection of the new bridge and town hall at Newry is at a end, members of affiliated branches of the labou societies—these being separated from, and independent of, the one local society in Newry—now having supplanted the men who turned out.

Mr. William Wildash Foord, one of the seniors o the firm of Foord and Sons, of Rochester, Government contractors, &c., died very suddenly whils standing on the Sun Pier, Chatham, on Thursday in last week. Mr. Foord was one of the aldermen of the new municipal borough of Chatham, and councillor of the city of Rochester. He was 6 years of age and had never married.

The Marlowe Memorial, which was unveiled o Wednesday by Mr. Henry Irving, will, when completed, consist of a Renaissance pedestal, carved in Portland stone, with four niches, intended to receiv four statuettes, Tamburlaine, the Jew of Malta Faustus, and Edward II. Of these only the firs has at present been completed. The pedestal wil bear a life-size bronze statue of a Lyric Muse. The monument rises about 13ft. above the level of th ground, and occupies the centre of the picturesqu little square at Christ Church gate, which was in ancient days the city bull stake. Mr. E. Onslow Ford, A.R.A., is the sculptor.

COMPETITIONS.

BLACKBURN.—At the last meeting of the Board of Management of the Blackburn and East Lancashire Infirmary, the report of the assessor, Mr. Alfred Culshaw, of Liverpool, on the nine sets of competitive plans received for the nurses' home, was read. Mr. Culshaw awarded the premium of £30 to the author of the plans under the motto "Light." On the envelope being opened the successful competitor proved to be Messrs. Simpson and Duckworth, of Richmond Chambers, Blackburn. The authors of the successful design estimate the cost at £3,477. The main entrance is in Infirmary-road, and is separate from the nurses' entrance, and approached by the covered way from the infirmary. The bedrooms generally are divided into suites of six, each group being complete in itself, and provision is made for six private nurses, six probationers, six charge nurses, and six night nurses. Two spare bedrooms are also provided. There will be large reading and recreation rooms. The building will be heated throughout with hot water. The style adopted is Elizabethan. The materials specified to be used are red Ruabon or Whinney Hill, Accrington, bricks, and Darleydale or Culingworth, Yorkshire, stone, with Carnarvon slate for roofs. The floors throughout will be of fire-proof construction. The father of the senior partner in the successful firm, the late John Simpson, superintended the erection of the Infirmary, and from the laying of the foundation stone in 1857 till the present day father or son have advised the board in all matters architectural. Mr. Angelo W. R. Simpson has been consulting architect to the board for the last twelve years, and he prepared the plans for the new wing which was added to the infirmary seven years ago. Two new entrance lodges have since been erected under his supervision, and now he and his partner are to build the nurses' home. The conditions were drawn up under the guidance of the assessor. Owing to a letter from one of the competing firms calling attention to the condition offering a £30 premium, but not necessarily guaranteeing that the author of the selected design should be intrusted to carry out the work, the infirmary board extended the time and undertook to accept the assessor's decision, and to employ the selected architect to carry out the work, provided that the architect could give reasonable satisfaction that he was able to carry out the work from previous experience.

CORK COURTHOUSE.—Friday was the last day for the lodging of the plans for the building of a new courthouse in Cork on the site of the one burned on Good Friday last. Thirteen were handed in at the Munster and Leinster Bank, although but fifteen applications were received by the committee for copies of the printed directions and instructions.

CHIPS.

An application having been made for the discharge from bankruptcy of George Veale, of Palatine-road, Stoke Newington, and Dunsmuir-road, Stamford Hill, builder and contractor, the Registrar has suspended the discharge for six years from Feb. 4th, 1890.

The memorial of the late Bishop of Dover has just been placed in the nave of Canterbury Cathedral, and will be unveiled by the Primate about the middle of October.

The Worshipful Company of Carpenters, in conjunction with the Council of Queen's College, have established at that college wood-carving classes. The day classes are held on Monday, Wednesday, and Friday afternoons, from 2 till 5; and the evening classes on Mondays and Wednesdays, from 7 till 9. Ladies will be permitted to attend, and prizes are offered by the Company.

A reredos is now in course of preparation for St. Luke's church, Fernhead-road, West Kilburn, at the hands of Mr. Oscar Junck. The entire recess formed by the west wall, below the large window of the chancel, 27ft. in width, is to be filled with terracotta, divided into four compartments. The upper panel is to be filled with a slightly-modified representation of Da Vinci's "Last Supper."

New Brunswick's lumber cut for the coming winter is estimated at 75,000,000ft., a decrease of 5,000ft. as compared with 1889.

The Deganway Estate, situated midway between Conway and Llandudno, and comprising some 280 acres, chiefly fronting the sea, was sold by auction at Llandudno on Tuesday. It cost the last proprietor a few years since £68,000, but was disposed of in one lot for £29,000

TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, 332, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

Cheques and Post-office Orders to be made payable to J. PASSMORE EDWARDS.

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Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page advertisements and alterations in serial advertisements must reach the office by Tuesday Morning to secure insertion.

NOTICE.

Bound volumes should be ordered early (price Twelve Shillings each), as only a limited number are done up. A few bound volumes of Vols. XL., XLI., XLVI., XLIX., L., LI., LIII., LIV., LVIII., LIX., and LX. may still be had, price Twelve Shillings; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

RECEIVED.—T. G.—J. G.—H. N.—E. H. H.—J. H.—B. H. and Co.—F.A.M.—E. J. W.—H. and T.—D and I.—T. H. G.—F. W. R. and Co.—S. of A.—B. G.—D. C. and Co.

Correspondence.

THE FACTORY ACT AND FIRE REGULATIONS.

To the Editor of the BUILDING NEWS.

SIR,—Under the Factory and Workshop Act, 1891, section 4, which comes in force on the 1st of January, 1892, all factories in which more than forty persons are employed have to be furnished with a certificate from the sanitary authority of the district in which the factory is situated that the factory is provided on the stories above the ground floor with such means of escape, in case of fire, for the persons employed therein as can reasonably be required under the circumstances of each case. As far as I can ascertain, the authorities have not made any regulations. As the subject is of great importance, I venture to call the attention of our profession to it, and suggest that an endeavour be made to obtain *uniform* regulations for the administration of the Act for the guidance of the authorities and the owners of such properties or their professional advisers. The Act makes the owner, and not the occupier, responsible for the provision of the alterations which may be required before the certificate in granted.

In the application of this section to the administrative County of London, the London County Council take the place of the sanitary authorities. H. D. SEARLES-WOOD.

157, Wool Exchange, Coleman-street, Sept. 9.

AUSTRALIAN TIMBERS.

SIR,—As a regular contributor, years ago, to the BUILDING NEWS, and as now one of the editors of the *Australian Builder and Contractors' News*, I have the pleasure to draw your attention to a valuable and instructive paper on "Some Ornamental New South Wales Timbers," which was read last Monday before the Sydney Architectural Association by Mr. J. H. Maiden, F.L.S., &c., Curator of the Sydney Technological Museum, and Consulting Botanist to the newly-established Forestry Department of New South Wales, and which you will receive in print by the mail which bears this letter. In view of the remarkable wealth of several of the Australasian colonies in timbers (both hardwood and ornamental) suitable for the various purposes of the engineer, the builder, the joiner, and the cabinetmaker, I venture to think that any practical information upon this subject would be not only interesting, but of real value, to many of your English readers—especially to architects and contractors.

Unfortunately, Australians themselves do not as yet know nearly as much about their native timbers as they should do, and in many cases the same wood is called by half a dozen different names by different individuals, some very amusing instances of which were recently narrated to me by one of the leading officials of the Sydney Technical College—now an admirably conducted branch of the Department of Public Instruction—on his return from a visit to some parts of the interior of this colony. But this ignorance is, happily, decreasing day by day, and it is not improbable that before very long a knowledge of Australian timbers and their qualities may exercise some appreciable influence on the timber markets of the world. For the knowledge referred to we are chiefly indebted to the establishment, a year or so ago, by Sir Henry Parkes, the veteran Premier of New South Wales, of the Forestry Department of this colony, under the general direction of Mr. J. Ednie Brown, who had previously distinguished himself by his exceedingly able occupancy, for some seven years, of a similar appointment in the younger colony of South Australia, and whose enthusiasm, ability, and sound judgment are already bringing about most satisfactory results in connection with his present administration.

The value of our hardwood timbers is far more widely known than that of our ornamental woods; and some three years since the especial utility of the former for purposes of comparatively fire-proof construction was forcibly drawn attention to in the leading organ of the Sydney daily Press, both by the President of the Institute of Architects of New South Wales and by myself, after a most disastrous fire at one of the newspaper offices; while for such purposes as piles and railway sleepers I doubt whether any country affords timbers more suitable than some of our gums and eucalyptus.

Bearing in mind the expediency, from considerations of mutual interest, of promoting a still closer commercial intercourse than even now exists, between the United Kingdom and Australia—New South Wales, I may remind you, Sir, is (and is likely to remain) a free-trade country—the qualities and possible applications of Australian timbers is one of the matters connected with these colonies information respecting which it seems to me desirable should be made as public as possible in England; and with this object, Sir, I send you these few lines, in case you may think them of sufficient importance to publish them in your valuable journal.—I am, &c.,

JAMES GREEN. ("De Libra.")

Head Office of the *Australian Builder and Contractors' News*, 527, Kent-street, Sydney, New South Wales, Aug. 8.

The Baptist chapel at Alderton, near Evesham, reopens on Sunday next after extensive alterations, carried out by Mr. John A. Oakey, of Winchcombe.

St. John's Seminary for the education of R.C. clergy for Southwark, at Wonersh, near Guildford, was opened on Tuesday week. Built of red brick, with Bath stone dressings, its style is of the Early English Renaissance. The main building consists of a central block 150ft. long by 42ft. wide, with flanking wings 120ft. by 34ft. at each end. On the ground floor are studies, conference hall, a refectory, and numerous class-rooms. Upstairs, and reached by wide staircases at either end, runs a corridor, from which lead the library, the professors' hall, and other fine apartments. The buildings have been erected at a cost of £30,000, by Messrs. Longley and Co., of Crawley, Sussex, from the designs of Mr. Fred A. Walter, F.S.A., of Westminster. A chapel has still to be erected at a cost of £5,000 more.

Intercommunication.

QUESTIONS.

[10625.]—**Palladian.**—Would any of your better-informed readers kindly inform me what the *distinctive* differences of style are as practised by Palladio and Bramante, other than the order running through two stories of the former? Might I take it that the Valmarini Palace and the Cancellaria are typical examples showing them sufficiently?—Youngster.

[10626.]—**Sewage Filtration.**—Will some reader kindly give me the name of a good work on sewage filtering beds, their construction, or any information respecting the quantity of land required to filter sewage from a house of about thirty inhabitants, it being desired to form a piece of ground into an irrigation bed, and to dispense with present cesspool arrangement?—Architect.

[10627.]—**Isometrical Projection.**—Will some reader kindly tell me a book treating on isometrical projection? Several questions in the R.I.B.A. Intermediate Exam. require its use, and I cannot find out what is meant. Is it really isometrical projection, or the adaptation of it sometime used, which is required?—L. D. U.

[10628.]—**Corrosion of Steam Space in Boiler.**—I have a wro't welded boiler fixed in large kitchener supplying steam to cooking pans, &c. The boiler (⅜in. thick) becomes corroded through at steam space in less than two years after fixing. Can any reader suggest means by which this may be improved upon?—F. R. Penistun.

REPLIES.

[10623.]—**Brick Arch.**—For the setting-out and construction of this arch (so-called), see "Practical Brickwork," by F. Walker (Crosby Lockwood and Co.), 1s. 6d. An arch of this kind should be supported by two small iron or other columns, forming an impost for the semi-arch to spring from.—Brickwork.

CHIPS.

A new board school was opened on Monday at Larbert. It accommodates 300 scholars. The structure, which is a two-story one, is 70ft. by 52ft., and has four large class-rooms, 33ft. by 23ft.

The corporate property committee of the Leeds town council have advised the latter body to adopt a scheme prepared by Mr. T. Hewson, the borough engineer, for the reconstruction of drainage of the town hall, at an estimated cost of £2,800.

Plans have just been passed for the erection of a free church for the Windmillhill district of Motherwell. The church, which will be known as the Free South Church, will accommodate 410 sitters, and 500 additional seats can be added at any future time. The design of the building is a Scottish development of Thirteenth Century Gothic. The church will be roofed in one span, with circular steel trusses encased in wood. The cost is estimated at £2,000.

Councillor William Newman, lock-furniture manufacturer, whose works are situated in North Wolverhampton, was found dead in bed at his residence, at Penn, on Tuesday morning.

A new police station has been erected at Whitley, and special attention has been paid to the ventilation, the extraction of the vitiated air being effected by Messrs. Boyle and Son's latest improved patent self-acting air-pump ventilators.

Alterations and additions to Sister Morgan's Home, Treforest, will shortly be commenced from plans prepared by Mr. Charles C. Jones, architect, Cardiff.

Extensive drainage arrangements have been recently carried out at All Saints' College, Bloxham, Thenford House, and Wykham Park, the seat of Mr. Wm. Mewburn. The old systems have been taken away, and replaced with Doulton's glazed pipes intercepting and inspection chambers, ventilating appliances, flushing tanks, and every modern sanitary arrangement of the day, and are in perfect working order. The whole of the above extensive works have been designed and carried out by Mr. J. W. Harding, sanitary engineer, Broad-street, Banbury, Oxon.

The Earl of Portsmouth's mansion at Hurstbourne Park, near Whitchurch, which was destroyed by fire some time since, is to be rebuilt from plans said to have been prepared by his son, Viscount Lymington, M.P.

On Monday 3,500 hands employed in the lumber mills of Ottawa struck work, demanding increased pay and shorter hours. The wages had been reduced in the spring, and the men seek a restoration of the old rate of wages.

The restoration of the south side of the parish church at Donington, near Spalding, Lincolnshire, has just been commenced by the contractor.

A group of Coastguard buildings, including offices, residences, and houses for the men, have just been built at Buryhead, N.B., under the superintendence of Mr. Bohner, Admiralty inspector. Mr. Jamieson, of Elgin, was the sole contractor.

WATER SUPPLY AND SANITARY MATTERS.

Guildford Sewage Scheme.—A public inquiry was held at Guildford on the 9th inst. by Mr. Arnold Taylor, C.E., of the Local Government Board, on the application of the Guildford Town Council for sanction to borrow £35,000 for purposes of sewerage and sewage-disposal works. The town clerk, who appeared in support of the application, said the matter had been very carefully considered by the town council for several years in order that the sewage might be disposed of without nuisance to anybody. So long ago as 1888 they appointed a committee which visited many places where sewage works were in operation, and came to the conclusion that the sewage should be dealt with by the system of the International Water and Sewage Purification Company which they saw in successful operation at Acton. Under that system the sewage is first treated in precipitation tanks with ferozone to remove the solids, and is then passed through polarite beds, such as are in successful use at Acton, Hendon, and other places. These polarite beds have a remarkable effect in rapidly oxidising the organic matter in solution, and analyses show that this process produces a much purer effluent than can be obtained by any other process. Mr. C. Nicholson Lailey, C.E., of Westminster, as well as other engineers (several of whom recommended the International process), prepared plans of the scheme, and Mr. Lailey's plans were finally selected and accordingly adopted by the sanitary authority. A large landowner having a residence near the proposed outfall works, engaged Mr. Baldwin Latham to consider whether the purification works as recommended by Mr. C. N. Lailey, were likely to cause a nuisance, and it was reported that he had no hesitation in saying that works of this character, if properly designed and carried out and attended to, could be made satisfactorily to deal with the sewage without the slightest nuisance arising even on the land itself. Sir Joseph Bazalgette also reported in favour of the scheme. The inspector expressed his entire approval of the scheme, stating that it was necessary to have the best system because the effluent discharged into the river Wey would ultimately reach the Thames above the water companies' intake. It is intended to proceed with the scheme without delay.

Richmond, Surrey.—A special meeting of the town council was held on Thursday week, for the purpose of hearing the report presented to the council by Mr. J. Lemon, C.E., on the condition of the Richmond sewers. The report stated that the work had not been carried out in accordance with the contract, the examination having proved a considerable absence of concrete, and that there were serious leakages. In conclusion, Mr. Lemon said:—"In placing the foregoing report before your committee, I have dealt with the facts as I have found them. It is a very unsatisfactory record of work improperly performed. I have looked at the question as a drainage engineer, and I have endeavoured to avoid the legal aspect, as that is a question upon which your committee are well advised." It was resolved to give notice to the contractor (Mr. Lewis) to reconstruct, in accordance with the terms of the contract, the defective parts pointed out by Mr. Lemon, and it was further decided to call in an independent engineer to superintend the reconstruction of the works referred to, and of the other work remaining to be executed under the contract. An exciting discussion followed on the following recommendation of the works committee:—"In view of the events which have occurred in relation to these sewers, the committee recommended the council to call upon the borough surveyor (Mr. Brooke) to tender his resignation.—On behalf of the borough surveyor it was urged that the punishment would be too severe, as he would practically be prevented from obtaining any other appointment.—The committee's recommendation was carried by twenty votes to six.

The new schools at Kingston-on-Thames are being warmed and ventilated by means of Shorland's patent Manchester grates, the same being supplied by Mr. E. H. Shorland, of Manchester.

The Bishop of Hexham and Newcastle has laid the foundation stone of a new convent, to be called the Home of the Good Shepherd, for the reformation of fallen women. The site is Benton Grange, Gosforth, and the cost of the building will be about £4,000. The building, when completed, will accommodate 200 penitents.

The new pavilion on the pier at Rhyl was formally opened on Saturday. Messrs. Darbishire and Smith, of Liverpool, are the architects, and Messrs. Holmes and Green, of the same city, the contractors. The building consists of a hall 50ft. square, with three transepts each 50ft. by 20ft. A ground floor and gallery are seated for 3,000 persons. The building is constructed of wood, iron, and glass, the style is that of the English Renaissance, and the total cost, exclusive of furnishing, will be about £6,000.

LEGAL INTELLIGENCE.

Alleged Breach of Building By-Laws.—At the Epsom Petty Sessions on Monday week, Lewis Monk, jeweller, of High-street, Sutton, was summoned by the Sutton local board for breaches of the 92nd by-law of that board, by erecting a building without depositing plans and sections of the building, either the drainage or water supply; and, further, without giving notice or stating the materials to be used. Mr. Monk, as owner of property in Lind-road, had put up a hay-shed in the rear of those premises without submitting plans, and had tacitly admitted the offence by depositing plans after he had been summoned. Mr. Crickmay, surveyor to the local board, deposed that the defendant had not deposited the necessary plans. Defendant alleged that the whole of the framework of the extension was up 12 months ago, when he was summoned for a like offence, and he had now only covered it in with ironwork. The surveyor admitted that he was not certain the framework was not erected on the occasion of the former prosecution. The Bench dismissed the case.

An Alleged Falsified Time-sheet.—At the Bristol Police-court on the 8th inst., George Hardwick Pearson, a carpenter, was charged, on remand, with attempting to obtain 12s. 3d. by false pretences from Messrs. Lewis and Sons, his masters, on the 28th August, and also with falsifying an account. The prosecutors, contractors, of Clifton, contracted to do alterations to Cheriton House, Westbury-on-Trym. The prisoner was in the employ of Messrs. Lewis as carpenter and joiner, and he was engaged upon the work at Cheriton House at 7½d. an hour. The charge was that the accused had misrepresented the hours he was working to a very material extent, and had also charged for lodgings, whereas he walked to and from his home. Evidence having been given in support of the charge, the accused was committed for trial at the Quarter Sessions, bail being allowed.

Re John Trollope.—A receiving order has been made against this debtor, who is described as of Bond-court, Walbrook, and Lower Walmer, builder. The debts secured and unsecured are returned at £3,000, and assets under £1,000.

The Wesleyan schools which have recently been erected in Clerke-street, Bury, in connection with Union-street chapel, were opened on Tuesday week. The cost of the schools, with the renovation of the chapel, has involved an outlay of £3,000.

William Oakley, the owner of small property at Vauxhall, was summoned to the Lambeth Police-court on Friday, under the Housing of the Working Classes Act, to show cause why an order should not be made against him for the closing of fifteen of his houses as unfit for habitation. Mr. Bolton stated that the defendant was willing to accept the order, and Mr. Brown, after hearing evidence, gave instructions for its issue, and authorised the vestry, besides, to expend not more than £30 in compensating tenants upon removal.

At the monthly meeting of the Cardiff Rural Sanitary Authority on the 9th inst., it was resolved to apply to the Local Goverment Board for urban powers for the licensing and regulation of slaughter-houses in the parishes of Llandaff, Whitechurch, Llanishew, and St. Andrew's. The authority have already acquired urban powers in the whole of their district, comprising 35 parishes, for the regulations of new streets and buildings in accordance with the Model By-laws of the Local Government Board, and the Public Health Acts Amendment Act, 1890.

A memorial mission-room at Kington, Herefordshire, was opened on Friday afternoon. The building measures 54ft. by 22ft. There are chairs for about 150 people. The outer walls are of hammer-dressed face work, in courses, with native stone from the Hergist Quarry, the dressing and tracery being of Uttoxeter stone in red and white. The roof is of open pitch-pine, unstained, and covered with green Westmoreland slate, and a bell-turret is erected at the west end. Wood-block flooring is used for the nave, and the chancel is laid with Godwin's tiles. The room has been built from a design by Mr. F. R. Kempson, of Hereford, by Mr. W. H. Wishlade, of Kington.

At the last meeting of the Bootle town council, a letter from the borough surveyor (Mr. W. N. Blair) was read, replying to the resolution passed at the previous council, that unless he should remove from his present residence at Formby and take up his abode in Bootle within two months' time he should be asked to resign his appointment. The letter dealt with several charges, stated by the writer to have been made against him, in great detail. A long and, at times, heated discussion followed the reading of the letter, an alderman leading off with a strong condemnation of the action of Mr. Blair, who in turn was supported to a large extent in what he had done by a councillor. Ultimately the previous resolution of the council was adhered to by 11 votes to 7.

Our Office Table.

Possibly stimulated by the recent example of the Society of Architects in organising their very successful Belgium trip, the Incorporated Association of Municipal and County Engineers have decided to visit Ireland, for the first time in their history as a body, at the close of next week. The meeting will be held at Dublin on Friday and Saturday in next week, the 25th and 26th inst. The programme for the first day includes a visit to the waterworks for Dublin at Roundwood, near Bray, members to assemble at the Harcourt-street station at the unusually early hour of 7.45 a.m. On their return to Dublin they will dine together at the Hamman Hotel, Upper Sackville-street. On the Saturday the members will meet at 10 a.m. in the council chamber at the City Hall, Cork Hill, Dublin, when the following papers will be read and discussed, viz.:—(*a*) "Sanitary and other works carried out by the Corporation of Dublin," by Mr. Spencer Harty, city engineer; and (*b*) "Road Maintenance," by Mr. R. H. Dorman, county surveyor, Armagh. This will be followed by a reception at the Mansion House, Dawson-street, by the Lord Mayor of Dublin, and Messrs. Guinness, Sons, and Co.'s Brewery, Messrs. Power and Sons' Distillery, and the Port and Dock Works at North Wall, will afterwards be visited.

Mr. Joseph Newton, A.M.I.C.E., who for many years—between thirty and forty—occupied various important posts in Her Majesty's Mint, but who is now living in modest retirement at Herne Hill, writes us to say that he thinks the time has come when a subway should be constructed between the Bank of England and the Mint. At present the whole of the gold imported into the Tower-hill money manufactory, in the shape of ingots, from Threadneedle-street, is conveyed through the crowded streets of the City in common carriers' waggons or carts, just as it was seventy or eighty years ago, when the Mint was built. In a similar primitive way all the coins of gold and of silver forwarded from the Mint to the Bank are jostled through the streets to that institution. A few clerks and porters are sent by the "Old Lady" to keep eye on the rich argosies, which in more troublesome times were guarded by soldiers from the Tower of London. Surely, Mr. Newton remarks, two sister establishments ought in these days of underground railways and electric subways, be made as it were one, by means of a subterranean communication. The cost of such a piece of civil engineering work would be little, in comparison with the value of the tunnel when finished. It should, of course, be of sufficient dimensions to allow of a footway on either side of the tram-rails, for passage to and fro of officials. Electricity both for propulsion and illumination might well be employed, whilst ventilation of a perfect kind could be insured through the agency of the steam-power of the Mint. The arrangement seems to us eminently practical, and we commend it accordingly.

At the closing meeting of the Trade Union Congress at Newcastle, held on Saturday, it was unanimously resolved, on the motion of Mr. Davis, of Hull, seconded by Mr. Malony, of the same town: "That this Congress strongly urges upon all sectional trades employed in the erection of buildings to use their utmost endeavours to eradicate sub-contracting and scamping in the building trade, and that in future the only contract recognised should be either a whole or a joint contract; in case of a joint contract of sectional trades, all the sectional contractors' names should appear on the original contract agreement; and any contract let by the original contractor, after the signing of the original agreement, should be termed a sub-contract, and such sub-contract should not be recognised by the operatives." On the vote being taken for an election of the Parliamentary Committee, it was announced that among the ten names chosen were those of Mr. W. Matkin, of the General Union of Carpenters and Joiners, and Mr. F. Chandler, secretary of the Amalgamated Society of Carpenters and Joiners, who received 147 and 146 votes respectively. As the standing orders of the Congress do not permit two delegates of the same trade to sit on this committee, Mr. Chandler withdrew his name.

A collection of pictures now in course of arrangement at the Birmingham Corporation Art Gallery, which will be opened to the public next week, will include many of the most celebrated works of members of the pre-Raphaelite school. Amongst those lent are the "Strayed Sheep," "The Scapegoat," "Isabella and the Basil Pot," and "The Shadow of Death," all by W. Holman Hunt. Of works by Sir J. E. Millais, the keeper of the gallery has secured seven, including the celebrated "Vale of Rest," which Mr. Henry Tate has presented to the nation with a large number of other works, and the famous pictures "Mariana in the Moated Grange," "The Proscribed Royalist," the very early pre-Raphaelite work "The Blind Girl," a study for the "Huguenots," "The Baptism of Guthrum," and "Greenwich Pensioners at the Tomb of Nelson." The committee have recently acquired for their permanent collection several pictures by well-known artists, including "The Adoration of the Magi," by Burne Jones, A.R.A.; "A Roman Lady," by G. F. Watts, R.A.; "The Last of England," by Ford Madox Brown; "Beata Beatrix," by D. G. Rossetti; "The Doubtful Coin," by J. F. Lewis; "The Widow's Mite," by Sir J. E. Millais; "The Falls of Schaffhausen," by Turner; and water-colour drawings by Aumonier, Albert Goodwin, Mrs. Allingham, and others.

The deaths of two octogenarian sculptors, both of whom owed their early success to Royal favour, are reported this week. Sir John Steell, R.S.A., H.M. Sculptor for Scotland, who died on Friday at Edinburgh, at the age of 87, made his mark in 1833 by a colossal design of "Alexander taming Bucephalus," for which the Board of Manufactures in Edinburgh awarded him a special prize of £50. The work was recently cast in bronze, full size, and erected by public subscription in St. Andrew-square, Edinburgh. One of the first commissions he obtained was from the Board of Works for the erection of the statue of the Queen which is over the entrance to the Royal Institution in Edinburgh. The statue of Sir Walter Scott for the Scott Monument in that city is one of Steell's ablest works. Here a personal acquaintance with Sir Walter no doubt materially assisted him. He also executed the medallion of Sir Walter in Poets' Corner, Westminster Abbey. Steell's works include the statues of Admiral Lord de Saumarez, in the hall of Greenwich Hospital; of the Marquis of Dalhousie, and of the Right Hon. James Wilson, in Calcutta; the equestrian statue of the Duke of Wellington in front of the Register House, Edinburgh, and other statues in the same city to Lord Jeffrey, Professor Wilson, Allan Ramsay, and Dr. Chalmers. He also executed busts of the Queen, the Prince of Wales, the Duke of Edinburgh, De Quincey, and others. Some years ago he executed for the city of New York a statue of Robert Burns, a replica of which was erected in Dundee. His masterpiece is the Scottish national memorial to the late Prince Consort which stands in Charlotte-square. In 1887, in recognition of his eminence as a sculptor, he was granted a pension from the Civil List.

The second sculptor whose death is reported this week is Mr. William Theed. His father, William Theed, R.A., was also a sculptor. The younger Theed, who, like Sir John Steell, was born in 1804, was for some years a pupil of E. H. Baily, R.A., the sculptor of the Nelson statue in Trafalgar-square. At the age of 22 he began a course of study at Rome under Thorwaldsen, John Gibson, Wyatt, and Tenerani. In 1844 Prince Consort requested Gibson to send him designs by English artists in Rome for ten marble statues to be placed at Osborne. Theed took part in the competition with "Narcissus at the Fountain" and "Psyche Lamenting the Loss of Cupid," both of which were adopted. To the same period belong his "Ruth Gleaning," "The Prodigal's Return," and "Rebecca at the Well." In 1848 he returned to London, where his work had already begun to attract attention. On the death of the Prince Consort Mr. Theed was asked by the Queen to execute a life-sized group of herself and His Royal Highness in Early English dress, which the Queen herself named "The Parting." His most important achievements were the statues of the Prince Consort for Coburg and Balmoral, of "Musidora" for Marborough House, of Sir Isaac Newton for Grantham, of the Duchess of Kent for Frogmore, of Henry Hallam for St. Paul's Cathedral, of the late Lord Derby for Liverpool, and of Sir Robert Peel for Huddersfield. He also designed the twelve bronze alto-reliefs from English history in the Prince's Chamber, House of Lords; and the colossal group representing Africa on the Albert Memorial in Hyde Park.

The death is announced from Japan of Shibata Zeshin, the greatest artist in Japanese lacquer, at any rate, so far as we have known by executed works, in Europe. The first of the works of Zeshin to attract attention was painted between 1844 and 1848. It was presented as a votive tablet to the shrine of Inaria, in Oji, a village in the suburbs of Tokio, where it still hangs. Shortly afterwards it was seen by a member of the Matsudaira family, who offered a large sum for it, but the priests did not consider they would be justified in parting with it. Zeshin, who was born 83 years ago, commenced his artistic career at the age of 18 or 19 as a painter of fans, and while pursuing this humble calling his work was of such excellence that the sons of artistic families became his pupils. When his pupils complained of business being slack, Zeshin told them they ought to congratulate themselves, for it was only when the pressure of every-day employment was removed that men could undertake works calculated to establish their reputation. He worked up to five days before his death, and was engaged upon a decorative picture painted on silk of the Japanese Elysian fields, which was almost completed. Examples of his great works in lacquer decoration have been exhibited in Europe.

The New South Wales timber, as our old correspondent "De Libra" points out in another column, offers many advantages to architects for ornamental joinery. The Sydney Architectural Association had a paper read before them lately by J. H. Maiden, F.L.S., curator of the Technological Museum, and consulting botanist to the Forestry Department, in which reference was made to native timbers, including the cedar group, the pine group, walnut substitutes, honeysuckle group, &c. The red cedar has been largely in demand, and is getting scarce. Very fine and beautiful woods for ornamental purposes are to be had. Thus, the rosewood, allied to the cedar, is a wood that combines admirably with black bean and tulip. The black bean is classed as one of the substitutes for walnut. The effect of rose-wood in large masses is to be seen on the premises of the Austral Banking Company. It works easily and shrinks very little, and is an excellent wood for newels, mouldings, and framing. Its price in the log is 15s. per 100ft., and may be had in sizes 12in. to 34in. wide, and 10ft. to 20ft. long. As walnut substitutes, Mr. Maiden recommended black bean, a dark wood, and black wood; the latter is highly valued, and Mr. Allen Ransome speaks highly of it, and says it can be used to advantage in the place of the best Honduras mahogany, and in fittings.

The syllabus of lectures in the Engineering Department of the City of London College has just been issued by the professor, Mr. Henry Adams, M.S.A. The courses comprise thorough and practical instruction in technical drawing and drawing-office practice, building and machine construction, civil engineering, mechanical engineering, quantity surveying, and land surveying and levelling. The classes are all in connection with the Science and Art Department, and are placed at a low fee to enable artisans to avail themselves of the privileges afforded by the College. The numerous valuable scholarships and prizes awarded in connection with the College enable an industrious student to obtain a free education of an advanced character and a large sum for the purchase of books and apparatus.

The builders and contractors of Victoria have formed an association for the protection of their interests, and have already done much to improve the usual conditions of contracting, in spite of two or three of their members who have shown disloyalty to the opinion of the association in a recent contract job at Melbourne, commented on in the pages of our contemporary, the *Australian Builder and Contractor's News*. The members of the association include nearly every "reputable builder" in Melbourne. It is well that contractors should band themselves together to protect their trade and to prevent "undercutting" and other disreputable modes of obtaining contracts, by refusing to tender for work under conditions that are detrimental to

building interests. Those members who set the rules or resolutions of the association at defiance ought to be subject to some penalty, or be struck off the roll of the association.

CHIPS.

The oak screen at St. Stephen's, Clewer, has just been embellished with a set of painted panels by Mr. George Ostrehan. On the men's side are the Four Doctors of the West, and on the women's, St. Mary Magdalen, St. Theresa, St. Elisabeth, and St. Frideswide. The work is harmonious in colour, and extremely careful in design, giving the greatest satisfaction to the donor.

The parish church of Hanmer, Flintshire, which was gutted by fire last year, has been reconstructed from plans by Mr. G. F. Bodley, A.R.A., and will be opened in October. The total cost of restoration has been about £7,000, the whole of which has been raised by voluntary effort. The pews were entirely destroyed by the fire, and will not be replaced, 300 chairs being substituted. The pulpit, font, and choir stalls have still to be erected, and at present service is conducted from the reading desk. The columns have been entirely renewed, and consist of stone hewn from the quarries of the Hon. Mrs. Bulkeley Owen. The builder is Mr. Franklin, of Oxford.

It is stated that Mr. Bazley White, the Member for Gravesend, has definitely decided not to seek re-election, owing to the state of his health. Mr. White is a well-known manufacturer of Portland cement, and is forty-three years old.

A new Roman Catholic Church, dedicated to St. John the Evangelist, has been commenced at Kidsgrove, Staffordshire, from the design of Messrs. W. Sugden and Son, architects, Leek. It is of Perpendicular Gothic character, brick-faced inside, and externally with yellow stone dressings and purple tiled roof. Mr. Bromage, Loughton, is the builder.

The memorial-stone of the new Welholme board schools has been laid at Grimsby. The schools are situated at the extreme Weelsby end of Welholme-road, and are being erected by Mr. Marrows, under the superintendence of Mr. Scaping, successor to Mr. E. W. Farebrother, the board's late architect. The schools will accommodate 750 children.

The new organ which has been erected in High-field church, Southampton, by Messrs. Walker and Sons, of London, at a cost of nearly £1,000, will be opened on Wednesday next.

At a meeting of the York city council, held on Monday, it was decided to send a memorial to the Local Government Board applying for sanction of loans of £1,530 for the purchase of property for the Barker-hill improvement, £1,660 for the purchase of property for the Coppergate improvement, £6,030 for the purchase of property in St. Helen's-square, £352 for the purchase of property for the improvement of Peaseholme-green, £550 for the purchase of land for the extension of Foss Islands depot, £400 for the purchase of land for a tip, £2,200 for the purchase of land for the extension of the cattle market, £4,100 for the purchase of the York Institute, and £6,955 for the Yorkshire Art Institution and the York School of Art.

A new harbour is proposed to be built at White-hills, Banffshire, at a cost of about £9,000. The plans have been prepared by Messrs. D. and T. Stevenson, civil engineers, of Edinburgh.

The west window of Harborough Church has been filled with stained glass, the work of Mr. Kempe, of London. It represents full size SS. George and Margaret.

Mr. R. Ballard, contractor, Child's-hill, has entered upon the construction of the Finchley drainage works, which will cost £18,000 in execution.

Mr. Elliott Beardsell was appointed on Wednesday district surveyor for the central ward of Bradford, Yorks.

The first section of the new railway at Manchester, which completes the circular system between the London-road and the Central stations, will be opened on the 1st prox. It extends from Chorlton (communicating with the Central Station) to Fallowfield. Sir C. Douglas Fox is the engineer, and Mr. J. D. Nowell the contractor.

For a long time past negotiations have been in progress between the town council of Leeds and the owners of the Quebec Estate, a block of buildings which is required to complete an important scheme of street improvements in the heart of the borough. For this block the corporation offered £28,000, which was not entertained by the owners. The Midland Railway Company have now volunteered to give £3,000 towards the purchase money, and a committee of the Leeds town council has recommended that body, in view of this contribution, to increase their offer to £33,000.

Trade News.

WAGES MOVEMENTS.

THE LONDON CARPENTERS' STRIKE.—Matters remain almost in the same position as last week. The masters threaten to escape from the deadlock by importing German labour, and to reduce the pay when shops are reopened by a halfpenny per hour; whereas the men point out that fresh funds are coming in from allied trades and provincial and colonial branches, and boast of being able to hold out for an indefinite period. The amount of strike pay was raised last week from 10s. to 10s. 6d., and this rate will be continued weekly. Should the proposed levies be granted, Mr. Day, chairman of the Amalgamated Society, anticipates that 18s. per week per head will be paid till the strike ends. Demonstrations are arranged to take place on Sunday next on Clerkenwell-green and at Croydon, and on Sunday week, the 27th inst., a grand demonstration of all the building trades will be held in Hyde-park in support of the movement. Several charges of intimidation and following have been dealt with during the week by the Metropolitan police magistrates. At Westminster Police-court Mr. De Rutzen has committed John Bradley for trial, bail being allowed, on a charge of persistently following Thomas Saxby, a man in the employ of Messrs. King and Son, of Vauxhall Bridge-road, with a view to compel him to leave his employment; and at Bow-street Sir John Bridge has ordered Charles Borrow to find sureties for good behaviour during six months for intimidating two men employed by Messrs. Drew and Cadman. —The release on Monday of Alfred Onslow, a carpenter, belonging to the Lambeth Branch of the Amalgamated Union of Carpenters and Joiners, from Wandsworth Gaol, where he had undergone a sentence of five weeks' imprisonment, passed by Sir Peter Edlin for intimidation, was made the occasion of a strike demonstration.

At the last meeting of the Sanitary Committee of the Newcastle Corporation, the question of model lodging-houses was under consideration. The city engineer, Mr. W. G. Laws, was instructed to obtain competitive plans for houses for men and women on a proposed site near the Milk Market.

The tower of the new church at Barmouth, now in course of erection on the Limestone Cliff, overlooking the estuary, collapsed on Saturday, falling upon the nave, which was utterly destroyed. It is estimated that the loss will be upwards of £5,000. Messrs. Douglas and Fordham, of Chester, the architects of the church, attribute the catastrophe entirely to blasting operations with dynamite among the rocks immediately at the back of the church, operations which were undertaken in order to obtain more light for the church. The reconstruction of the tower and building will begin immediately.

The Liverpool City Council adopted, on Wednesday, a resolution requiring contractors for Corporation work to sign an undertaking to pay the rate of wages and observe the hours of labour recommended and agreed upon between Trades Unions and employers respectively, or such rate of wages and bonus as are equivalent or approximate thereto, and that no underletting or assignment of work be allowed in Corporation contracts.

Holloway's Pills.—Indigestion, Stomach, and Liver Complaints.—Persons suffering from any derangements of the liver, stomach, or the organs of digestion should, have recourse to Holloway's Pills, as there is no medicine known that acts on these particular complaints with such certain success. Its peculiar properties strengthen the stomach, increase the appetite, and rouse the sluggish liver.

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TENDERS.

*** Correspondents would in all cases oblige by giving the addresses of the parties tendering—at any rate, of the accepted tender: it adds to the value of the information.

ABERDARE.—For additions to church for the Rev. Father O'Reilly. Mr. C. C. Jones, 2, Charles-street, Cardiff, architect:—
Morgan, Aberdare (accepted).

BECKENHAM.—For erection of shops, studios, &c., at High street and Albemarle-street, Beckenham, Kent, for Mr. E. Cooper. Mr. G. Warren Cooper, architect. Mr. A. R. Brede, surveyor:—

Charteris	£4,650 0 0
Downs, W.	4,370 0 0
Nightingale, B. E.	4,196 0 0
Brown and Co.	4,150 0 0
Jerrard	4,127 0 0
Higgs	4,070 0 0
Goodall...	4,026 0 0
Pocock	3,933 0 0
Wallis and Son	3,829 0 0
Mid-Kent Building Works ...	3,700 0 0

BECKENHAM.—For erection of coach-houses at the Railway Hotel, Beckenham. Mr. G. Warren Cooper, Bedford-row House, Bedford-row, W.C., architect:—
Webb (accepted) £450 0 0

BIRKENHEAD.—For making a footway from Conway-street to the Inner Drive at the Park, for the town council:—
Forde, W. H. (accepted) £402 15 9

BIRKENHEAD.—For painting and decorating at the town hall, for the town council:—
White, A., and Sons (accepted) ... 500 0 0

BOSTON, LINCOLNSHIRE.—For the extension of the fish quay at the dock, for the harbour commissioners:—
Hinds and Co. (accepted) £1,170 0 0

BRIDPORT.—For the erection of an iron bridge at Cooke's Mill, for the town council:—
Sansom, R R. (accepted).

BRIXTON.—For the erection of a new central library at Brixton for Mr. H. Tate, J.P. Mr. S. R. J. Smith, F.R.I.B.A., architect:—

	A.	B.
Mowlem and Co. ...	£12,578 0 0	... £1,433 0 0
Hall, Bedall, and Co. ...	11,390 0 0	... 1,524 0 0
Candler and Son	11,200 0 0	... 1,500 0 0
Higgs and Hill	10,964 0 0	... 1,490 0 0
Nightingale, B. E. ...	10,950 0 0	... 1,407 0 0
Higgs, F. and H. ...	10,600 0 0	... 1,320 0 0

A.—Building. B.—Fittings.

BRONSIL HOUSE, NEAR LEDBURY.—For drainage works to Bronsil. Mr. G. H. Godsell, Palace-chambers, Hereford, architect:—
Lewis, W. P., and Co., Hereford* £2,200 0 0
(No competition.)
For water supply to Bronsil House:—
Lewis, W. P., and Co., Hereford* .. £197 0 0
(No competition.)
* Accepted.

CARDIFF.—For the erection of a new church for the Rev. Father Butler, exclusive of foundations and priests and boys' sacristies. Mr. C. C. Jones, 2, Charles-street, Cardiff, architect:—
Turner and Sons, Cardiff (accepted) £2,038 0 0

CARDIFF.—For repainting and decorating Cabalva Cathedral-road, Cardiff. Mr. C. C. Jones, 2, Charles-street, Cardiff, architect:—
Banes, Cardiff (accepted).

CLIFTON.—For work in alterations and repairs at No. 31 Berkeley-square, Clifton, to accommodate the Kensington School of Art. Messrs. Trew and Sons, Broad-street, Bristol, architects:—

Thorley, Son and Derrick	£255 15 0
Perry, J. (withdrawn)	217 16 0
Webley, T.	206 6 0
Elmes, G. (accepted)	189 0 0

All of Bristol.

Lloyds Bank Caterham.

ALEXR · R · STENNING · ARCHT



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NEW MUNICIPAL BUILDINGS

Corporation of Bury

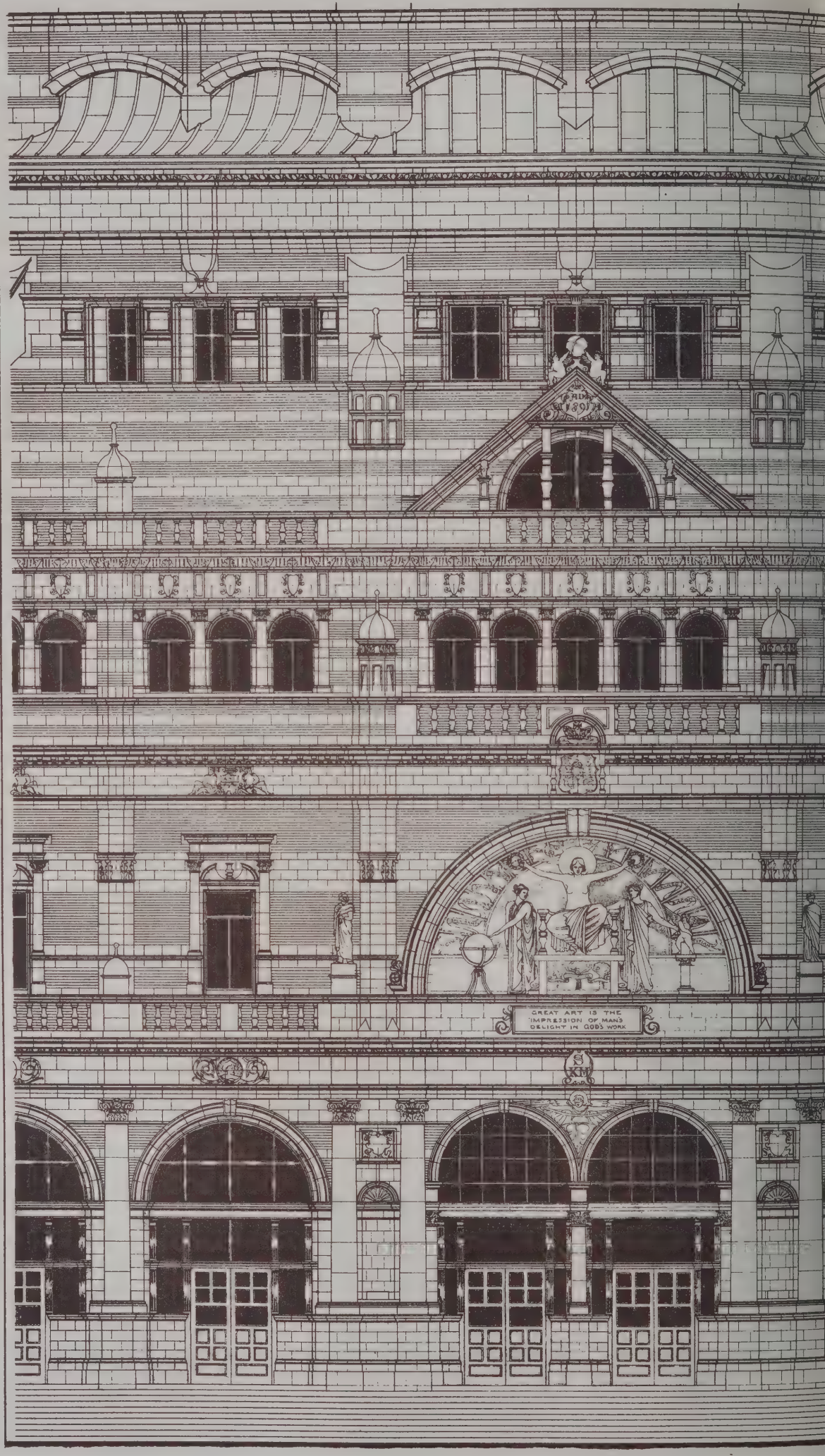
SELECTED DESIGN BY A.N.BROMLEY, F.R.I.B.A.



HAYMARKET STREET ELEVATION

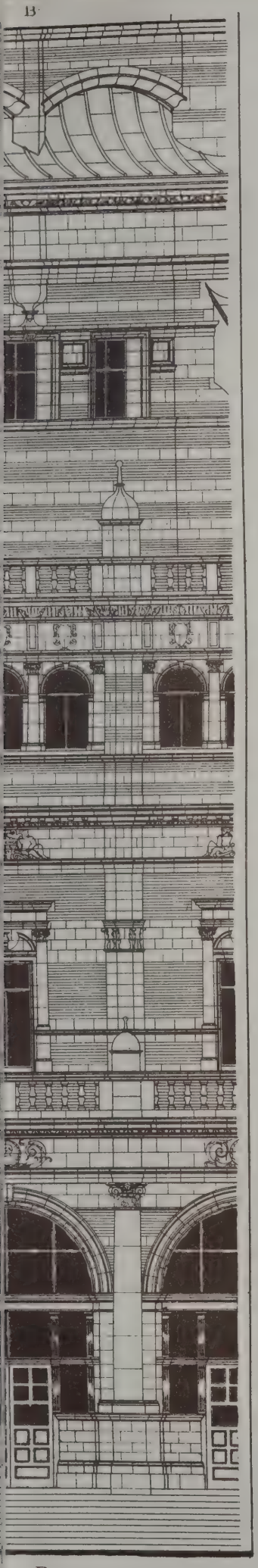
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A



ELEVATION OF PRINCIPAL ENTRANCE

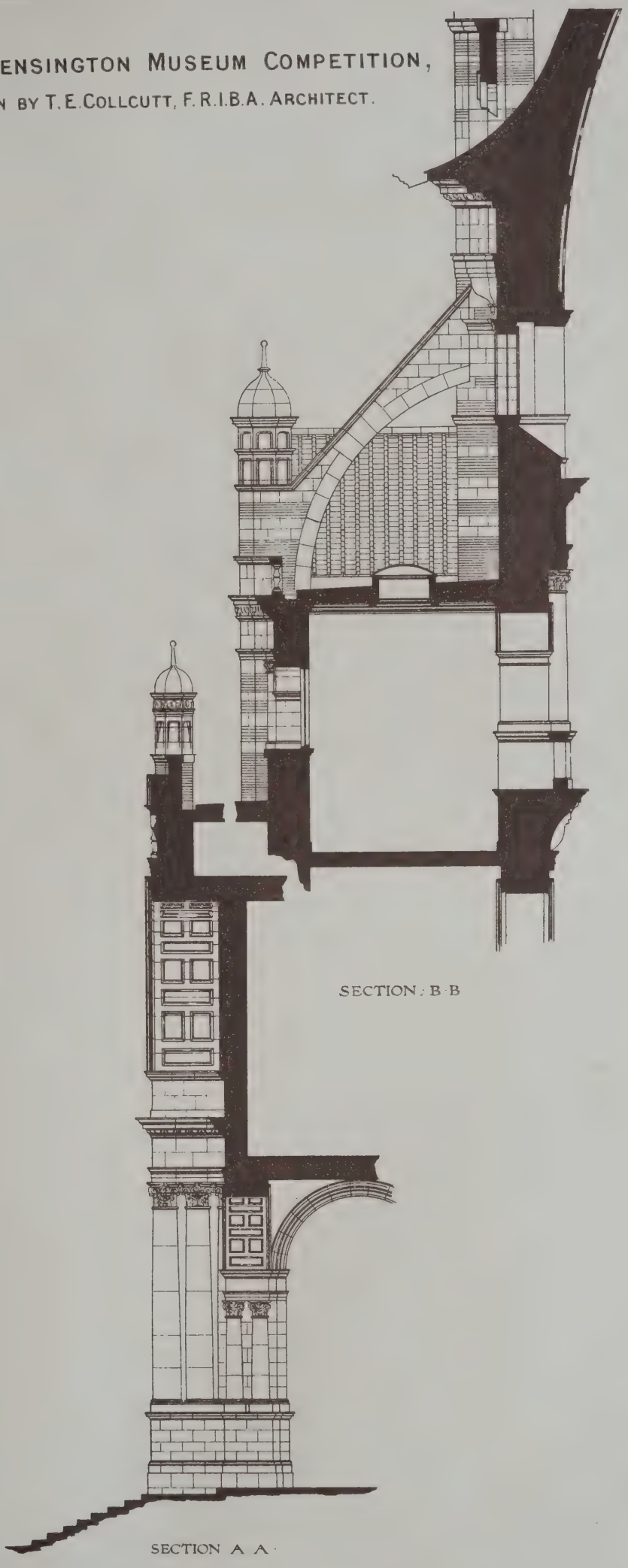
B



B

SOUTH KENSINGTON MUSEUM COMPETITION,

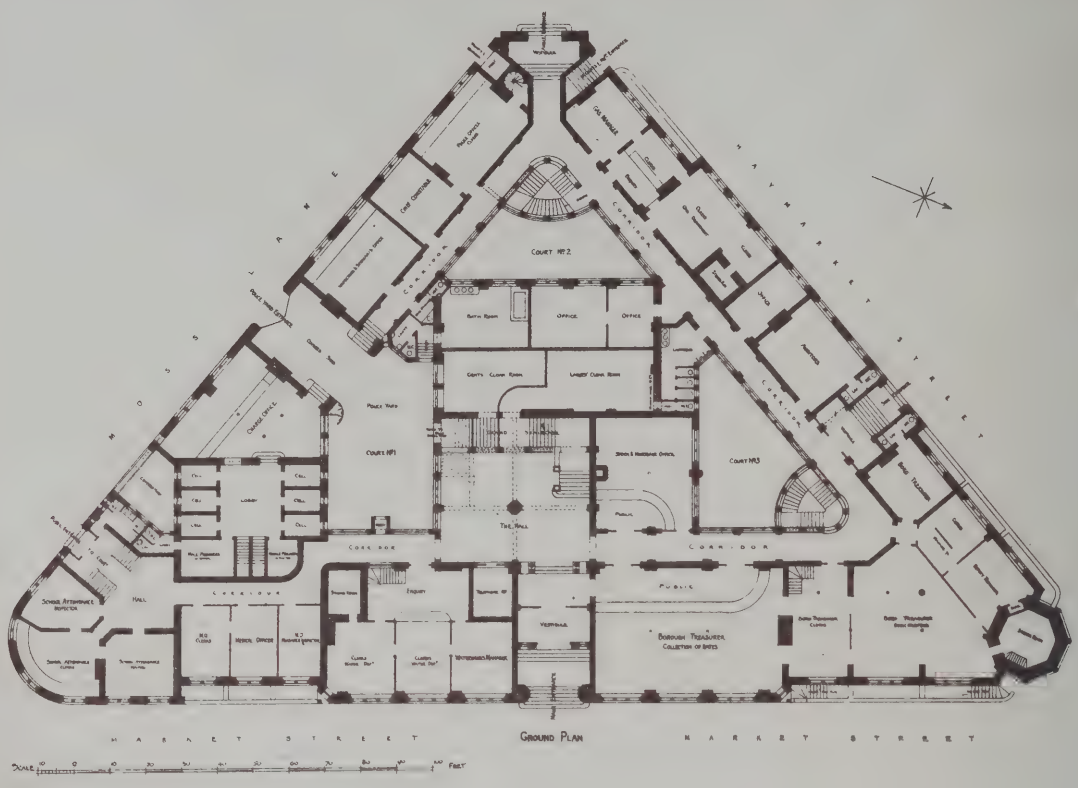
DESIGN BY T. E. COLLCUTT, F.R.I.B.A. ARCHITECT.



SECTION B B

SECTION A A

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COURT NO 2
COURT NO 1
COURT NO 3
THE HALL
PUBLIC
CORRIDOR
MARKET STREET
MARKET STREET

GROUND PLAN



NEW MUNICIPAL BUILDINGS

Corporation of Bury

SELECTED DESIGN BY A.N.BROMLEY, F.R.I.B.A.

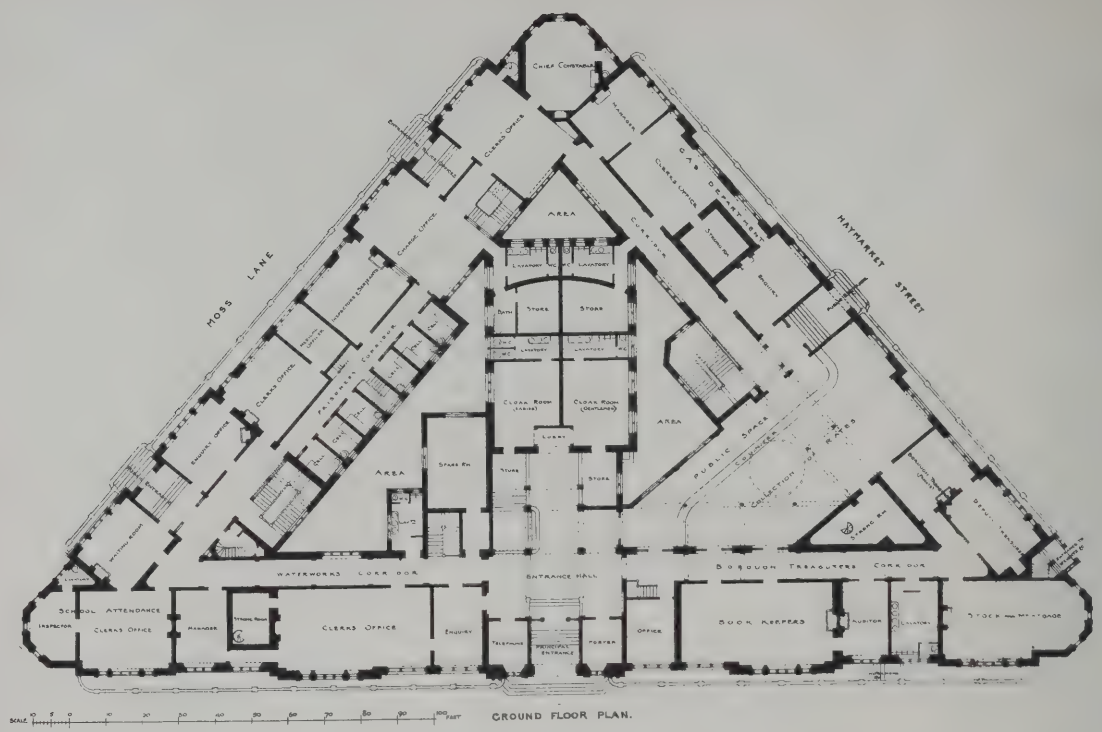


FIRST FLOOR PLAN

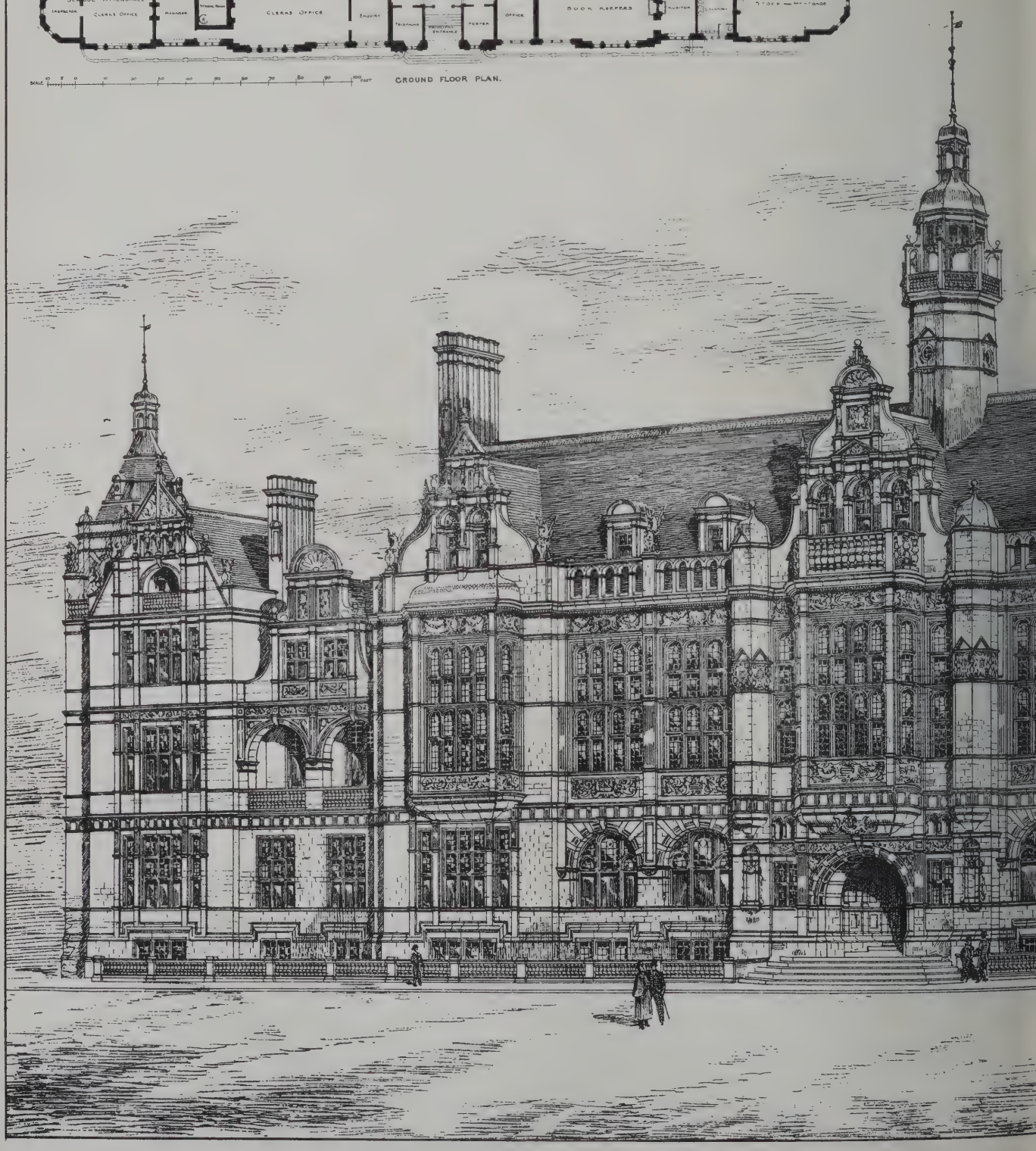
ET ELEVATION

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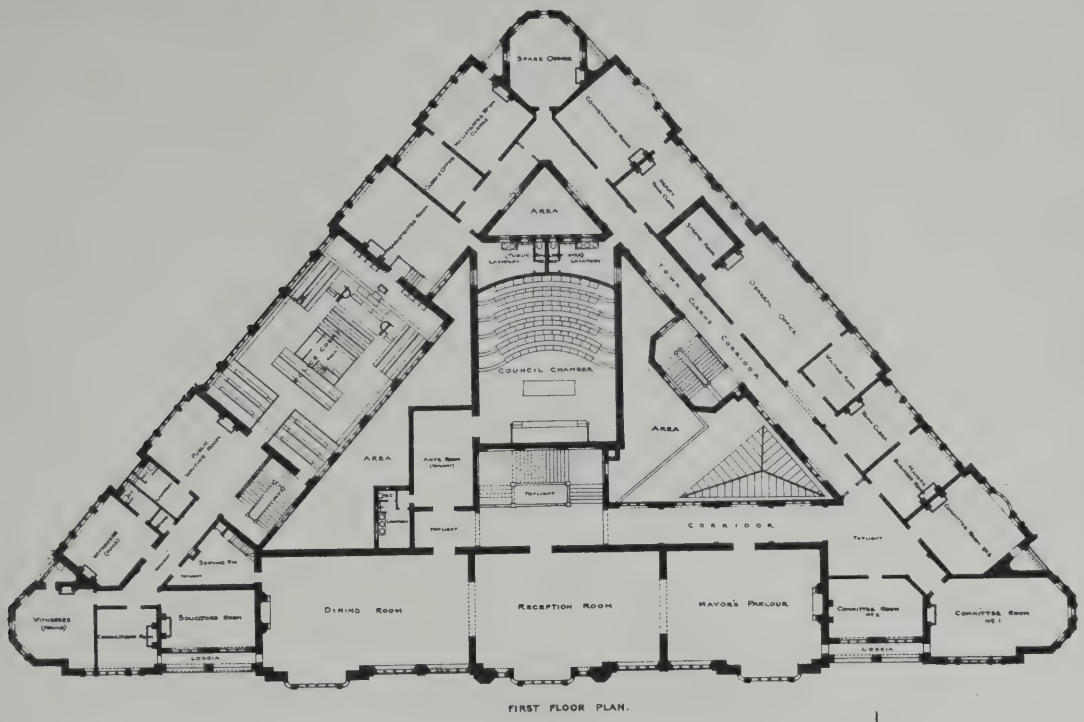
BURY MUN
SECOND P
H.T. HA



GROUND FLOOR PLAN.



BUILDINGS.
D DESIGN.
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FIRST FLOOR PLAN.

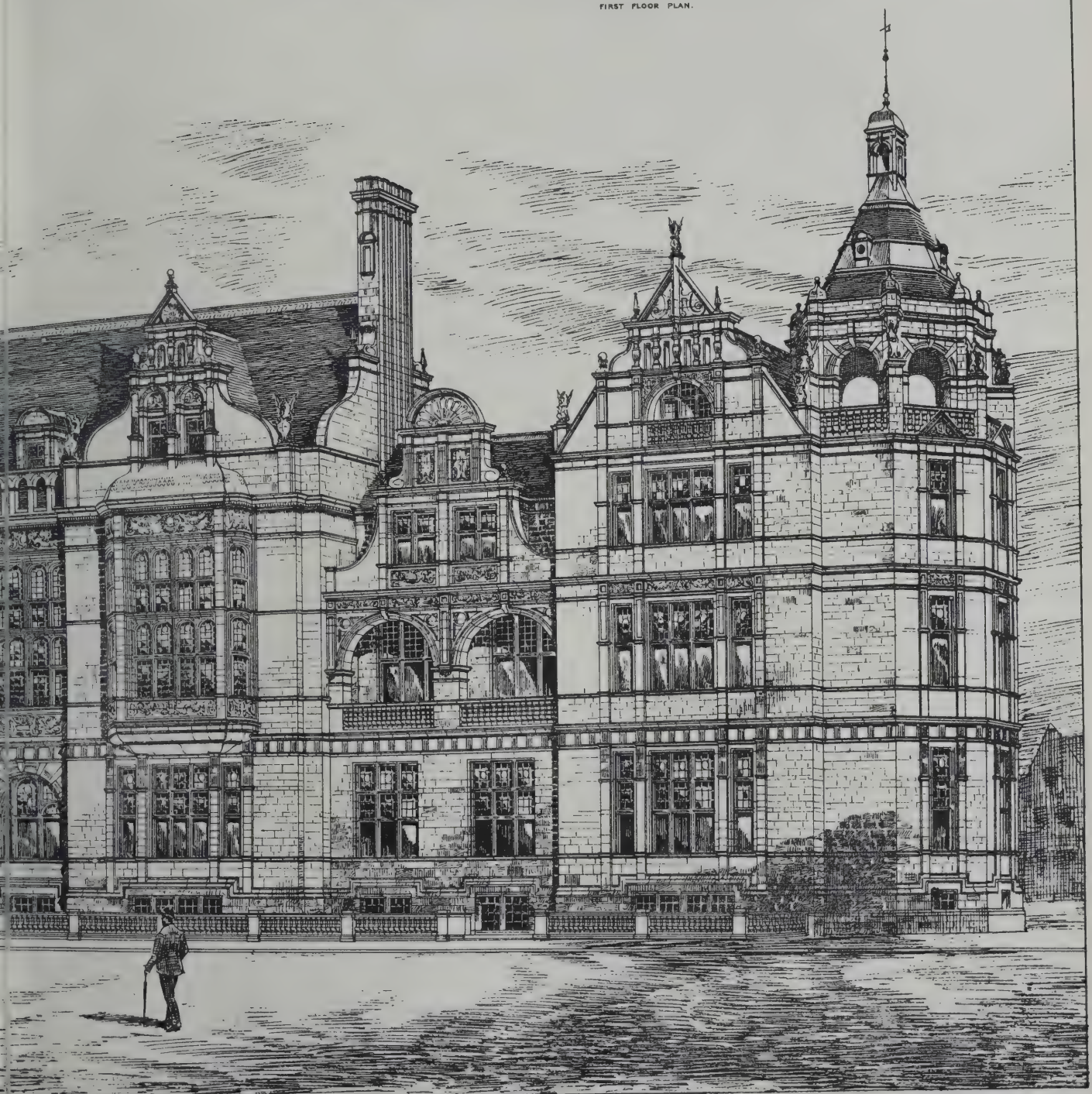


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HE BUILDING NEWS
AND ENGINEERING JOURNAL.
VOL. LXI.—No. 1916.
FRIDAY, SEPTEMBER 25, 1891.

EW STREETS AND THEIR ARCHI-TECTURE.

EMARKABLE changes have taken place in the aspects of several streets in the etropolis by the demolition of old premises d the rebuilding of lofty structures in their ace, and perhaps if we were asked in what anner architecture becomes a factor in our idst of considerable power, we might swer that its objective existence in the ape of buildings erected has an influence good or ill that cannot be ignored. As the tural landscape is made up mainly by trees, ls, and valleys, which constitute its charms power over the mind and imagination, so own is rendered pleasing or disagreeable, ractive or repulsive, by its streets and ildings. To the reader who has travelled all in this country, the impressions made such cities as Birmingham and Manester, Oxford and Winchester, Brighton and urnemouth will appear different, and be ociated with very opposite emotions. In first, lofty, smoke-begrimed warehouses d factories have not a very cheering or hilarating effect on the mind; in the two ond, the beauties of the High-streets will turally captivate and impress the emonal mind; and in the third pair of towns med very different ideas are conjured up. what constitutes the distinctive characistics of these towns? Landscape, of rse, has something to do with it; the figuration of the surface, the hills, and dulations, but architecture mainly—the position of the main streets, the play of set frontage, the skyline produced by the le of the buildings, the factory roofs and cks, the tower, spire, and gable, or the notony of level cornices and windows. en such diverse cities as Shrewsbury and th, Oxford and Brighton, are what they by reason of their architecture, or, rather, ir streets. What very opposite associans are awakened in the mind by Wineet, Bristol, and Pulteney-street, Bath, trasted with the High-street of Oxford, the King's-road, Brighton!

But we are digressing; our object is to nt out the great transformation made by ew changes in our main streets. During last ten years London has changed nensely—we will not say altogether for better. Large areas of closely-built ses and shops have been pulled down or through by such "improvements" as se made by Shaftesbury-avenue, Charing ss-road, Clerkenwell-road, and Gray's n-road, and these have no doubt resulted throwing open to light and air many rts and alleys which were deprived of se indispensable elements of health. It is ir incomplete, half-finished appearance t is so distractive and unsightly. do not find fault with the clear- e of unhealthful and insanitary areas; with hideous malformations, the ightly erections, and the acres of desolate tes of brick and mortar and hoarded osures which meet us on all hands. we regard with any complacency the tes and rubbish heaps which still spoil s of Charing Cross-road and Clerken- ?

nest of closely packed and unsanitary llings between Long Acre and the Strand anded immediate attention, and the of Clare Market, between Gilbert- et and Vere-street, has been cleared nany old and dilapidated houses. A l clearance was called for here. A few old "bulk shops" still remain on the south side, and in Gilbert-passage, Clare, Holles, and Haughton-streets, leading out of Clare Market, named after the titles of the Earls of Clare, are old and dilapidated houses with but few traces of any interest externally. Pepys, in his Diary, mentions a theatre in Gibbons-court which he says "was the finest play-house, I believe, that ever was in England." The butchers of Clare Market were noted for their theatrical proclivities, and Joe Miller, the comedian, is said to have been a frequenter of an inn in Portsmouth-street. Notwithstanding its past associations, the market has long been one of the most squalid and unsavoury localities. To sweep away the neighbourhood, therefore, cannot be any loss if its site can be dealt with satisfactorily. It is asserted that stables for Messrs. W. H. Smith and Son are to be erected on the vacant area.

In connection with this locality was the proposal of the Improvement Committee of the County Council to run a street from the corner of the Strand and Catherine-street in a northerly direction into High Holborn; but this scheme has at least been postponed for the present. A more direct communication between these main arteries than the long detour by way of Wellington-street, Bow-street, and Great Queen-street is certainly necessary; and we should prefer a street commencing a little further eastwards, say from Newcastle-street, cutting Vere-street, and taking the western side of Lincoln's Inn-fields, as a more right-angled and agreeable thoroughfare. Oblique lines are objectionable, especially when they make acute angles and leave triangular spaces to fill up. Many unsightly inclosures of this kind are to be seen where recent streets have been made. These plots remain unlet for a considerable time, perhaps years, and become refuse receptacles. The completed scheme is deferred, the architectural aspect of the whole thoroughfare being broken and confused by these gaps.

The architecture of the new streets has been greatly affected by these irregularities, and also by the fact that the plots let for building are often so restricted in depth that only a frontage of considerable elevation can be erected to make the outlay remunerative. Here we have one of the most detrimental circumstances in connection with street alterations in the Metropolis. A road is generally widened by demolishing the old premises on one side, and therefore the depth of plots on that side is reduced in consequence so much, that in some cases there is little courtyard left. As the ground-rent is heavy, a new building is carried up several additional stories. The evil consequence of this increase of height is that a very inadequate depth is given to the building to avoid the obstruction of the "ancient lights" in the rear. We see the result in those ungainly-looking buildings—all front—which we meet with in nearly every new, or widened, thoroughfare. A flagrant instance may be seen in Charing Cross-road. Looking southwards, with St. Martin's Church steeple and the back of the National Gallery in the distance, the eye cannot fail to be arrested by the side view on the left of a shallow recent building, which has more the appearance of the end of a huge wall, or buttress. The sectional view of the roof, instead of being of equal rafters, presents a long slope behind, and a very short one in front, giving the effect of a sloped weathering, the object being evidently to give the rays of light a fair angle to the premises in the rear. This unsightly erection is likely to remain an eyesore for a long time to come, and its ungainly blank party-wall, which out-tops the adjacent buildings, makes a most unpleasant object in the vista towards the south. A more execrable "skyline" perhaps it would be difficult to conceive. Similar eyesores are to be found in many other new streets, as at the reconstructed junction of Shaftesbury-avenue and Oxford-street. The mischief is that they give an unfortunate impression. The old buildings were at least picturesque; these are positively ugly.

The architectural features of this new western thoroughfare are scarcely equal to what might have been expected. What a fine opportunity there was, for instance, to do something really architectural at the corner of St. Martin's-lane and Charing Cross-road facing the back of the National Gallery. The curved frontage is certainly unfortunate, as it is not a regular one, and the new façade of St. Martin's-in-the-Fields Town Hall does not happily align with anything. The edifice, though of stone with an upper order of pilasters, has a flat superficial appearance, owing to a want of well-accentuated breaks which would have been valuable as carrying down the lines of the domical pavilion roofs of zinc, at the ends. These latter look somewhat attenuated. Assuredly, solidity and strength might have been given to this building by a more broken frontage—by deeper reveals to the windows and less meagre detail. The vestibule entrance is certainly poor. Adjoining it is a number of buildings of more or less pretensions on a flat curve. The Garrick Theatre has been followed by several business premises. Next to it is a gabled front of brick, with a stone basement and mezzanine. The gable end is simply treated, the upper story broken by small brick piers between the windows. Then follows a warm sandstone front, that of Szerelmey's premises (Faraday House), a quietly-treated façade divided by wide stone piers with mullioned windows. Next door a large red brick house of six stories over shop, surmounted by a richly-carved brick gable, is built. A flat bay window is shown on one side. Paternoster House, the new premises of Kegan Paul and Co. has also a very flat bay window supported on the stone head of doorway. This "sailing" over of the brick front is scarcely justifiable, though it gives relief to an otherwise flat front. The corner premises, known as Charing-cross Mansions, are extremely flat and ugly. On the opposite side of the way is Newbery House, the premises of Messrs. Griffith, Farran, Okeden, and Welsh, a red brick and stone structure, crowded by small windows, divided by stone piers, and a corner extension of the same premises is being carried out, though in a rather different style, with a circular oriel at the angle. With this exception the western side of the road at this end presents a row of old and dilapidated premises without any interest. Passing northwards, we come to the row of barrack-like buildings called Sandringham Buildings, erected by the "Improved Industrial Dwellings Co." some years ago, a dark, dingy row of flats with shops beneath, which materially spoils the effect of the new road. One regrets that D'Oyley Carte's new theatre could not have been placed somewhere nearer the south end of the road, to give it a little character. The observer is struck by the extremely heterogeneous composition of the street, owing to the admixture of old houses and new business premises. As we go further north the architecture somewhat improves, red brick and terracotta appear to predominate over the stone, and some effective business premises are those of Messrs. Crosse and Blackwell. But on the whole the new road cannot be called an architectural success, the skyline is at points painfully harsh and disagreeable, and as we pass Shaftesbury Avenue and come in view of the busy intersection of Oxford-street and Tottenham Court-road with its unpicturesque and prosaic assemblage of gables and roofs, we are compelled to admit that the new thoroughfare is devoid of those features of interest and beauty which distinguish the older streets. At the southern end a very glaring

disfigurement will happily be removed by the erection of a new building masking the rear wall of the National Gallery, and which is destined for the National Portrait Gallery. The north elevation, and adjoining sculpture gallery, designed by Mr. Ewan Christian, we illustrated on July 10, from which it will be seen that the Greek design of the old building is preserved along the east front, but the north block is in a freer style—an Italian or Romanesque treatment. By this masking the blank walls of the National Gallery, which now present a very barren and unsightly appearance to the entrance of this thoroughfare at the north end, will be transformed, and the vista southwards be rendered more worthy of the neighbourhood.

FREE PUBLIC LIBRARIES—XVI.

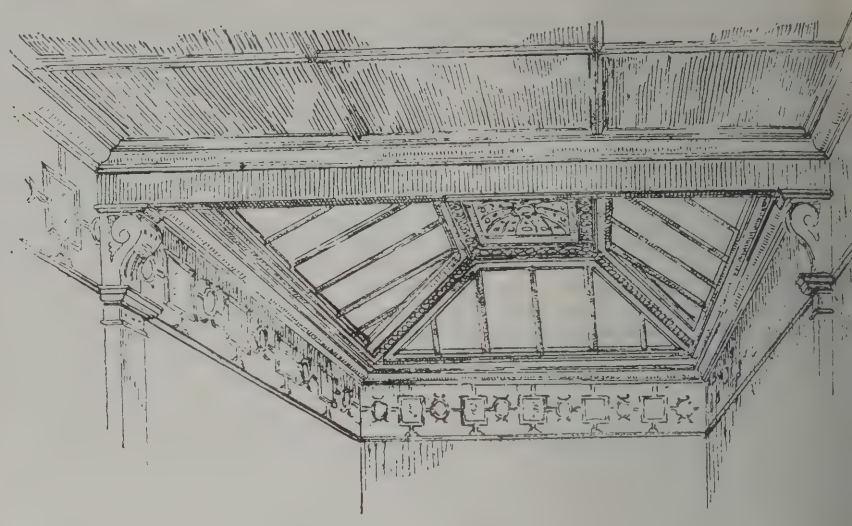
PARTIAL TOP-LIGHTS.

WE spoke in our last article (section Glazed Roofs) of plans for news and reading-rooms on the ground floor, in which top-light could only be partially obtained by reason of an upper story being desirable over a portion of their area. Many recently built libraries have this arrangement, the main object of which is to secure ample light at the inner part of the room furthest from the front windows. Architecturally, this combination of top and side lights is open to the objection that it has rather a make-shift appearance; the skylight, wherever it is placed, looks rather like an afterthought, especially if a flat ceiling is carried throughout the room with an ordinary trimmed skylight in it. This effect somewhat mars the appearance of the interior of the newly-erected library in St. Martin's-lane, the upper room of which has a large flat ceiling, broken by skylights. One method of avoiding the unsatisfactory effect of this plan is to boldly pronounce the top-light by making it either a distinctive feature like a lantern, or to cut off the skylighted portion from the flat ceiling by a beam. For example, the ceiling of the room may be divided into compartments or panels by cross beams, and one of these be given up to the top-light, as in the sketch we give. In this manner the ceiling appears to be a studied design, and a more architectural finish is given to the room. The beam represented may be a concealed girder carrying the outer wall of the room above, and therefore it has a useful as well as decorative purpose.

ALCOVE LIGHTING.

Sometimes an alcove or recess may be made a useful addition to a news or reading-room. These may be square, semicircular, or octagonal. It would be easy to arrange an inner alcove underneath a top light of this kind by the addition of a few columns, and thereby create a pleasing feature out of a necessity. If the recess is thrown out as a bay from the wall of room, it would be easy to have a circular or octagonal lantern over it, half of which would cover the recess and the other half project into the room. A skilful architect will find other methods of making top-lights a feature.

Alcoves may often be a desirable mode of utilising the inner side of a news or reading-room where top-light can be obtained. A series of alcoves, for example, along the side can be lighted by a skylight, or by several separate lights. When a window cannot be introduced in each alcove, the above plan secures the requisite light, without which the alcove system is objectionable. For example, along the blank wall of a reading-room a number of bookcases, 8ft. high, placed at right angles to the wall at a convenient distance apart, will form a series of alcoves, and may be lighted by one long skylight overhead, or by separate lights, and in this manner a wide room with windows



on one side can be made comfortable and pleasing.

HIPPED SKYLIGHTS.

When a reading or news-room on the ground floor has an area for light over a portion of it, or is inclosed by buildings, the top light may, with advantage, occupy the whole width of the room, as in the form sketched in our illustration. A plain hipped lantern, formed by angle hip rafters, with glazed lights in each of the sides as shown, is a good and economical form. The apex may be cut-off with a square ceiling, which can be utilised for ventilation, one of Boyle's air-pump ventilators or other outlet being fixed at the external apex. Inside one of Strode and Co.'s ventilating sun burners can be placed below. By thus cutting off the apex internally, an architectural character can be given; the angle ribs ought to be massive and moulded, or enriched on the soffit, and the level soffit at the apex be also surrounded by a margin and enriched. The intervening bars of the side-glazed lights should be of large section and moulded. An octagonal-shaped lantern admits of similar construction, the cardinal sides of octagon being coincident with the sides of the compartment, in which case it is only necessary to cut off the four angles by beams, and allow the hip rafters to start from the angles. We will show a few arrangements of this kind. Lanterns occupying the entire width and area of the compartment have an imposing appearance: they allow the whole external area to be utilised, and thus give more light than a small skylight on either side of a span-roof or a flat ceiling light, as we often see in buildings of this kind. The only expense is in making the angle-hips massive, and in casing them with plaster internally.

DECORATIVE JOINERY.

FEW things add more to the interior effect of a building than the woodwork. One of the reasons is that the joiners' work accentuates the points which most frequently arrest the eye—the doors, the windows, the floor, and wall linings; another reason is that the tone of the woodwork is generally a little darker than the walls or ceilings, and, therefore, draws attention to itself. The old conventional rules of painting, which made doors and skirtings appear as if they were made of the same material as the walls, by painting them stone colour or drab of two shades to represent stone or marble, was destructive alike of good joinery and of decoration. It was one of the traditions of Classical architecture, and lingered long in buildings erected during the 18th and the early part of the present century. Good joiners' work lasted so long as materials and labour were measured and valued, but the co system considerably altered the state case; the trade began to lose heart in work. They began to see that their and skill were thrown away, or were n in the same esteem as that of the pai grainer. To a partial extent we are ning to discover the mistake of conc behind a film of paint the beauty of work, a discovery partly attributed revival of art and the industries con with wood-working. The chief oppone been the cheap contractor, who has been an advocate for paint as a cove substitute for the real thing. From work in the flat, the fashion towards "grained" work, till the Revival brought with it the ine reaction against shams. Both stuc paint were condemned. It was anath use anything that imitated or conceale like all reactions, the opposite extre inculcated of exposing the material, structure, however unsightly. Fro time, woodwork, happily, regained portance, and began to be regarde feature of buildings. The plaster were stripped off church roofs, and unwrought timbers exposed; the grai painted, pews of churches gave place stained and varnished benches; pu the old three-decked type and galleri removed. The change, of course, with it a new industry—church furn Oak and deal fittings, from benches t pulpits and lecterns, communion tab other furniture became a special tra were introduced in catalogues. D work followed suit. We have now nu firms who contract to supply domestic doors, dadoes, parquet, chimneypie overmantels in which oak and wal other special woods are introduce "Queen Anne" architects have ass develop this ornamental joinery, names of Nesfield, Mr. Norman Sha Edis, Mr. T. G. Jackson, Messrs. Gee Peto, and others, are associated w revival of woodwork. The decorativ ment of joinery is largely indebted gentlemen, and to their efforts we introduction of many hard woods quetry, for example, either as solid ¼in. thick, has been very extensiv ployed during the last few years. added a great charm to the artistic rooms, and the manufacture of it has a degree of excellence which will favourably with the best foreign and work. Thin parquet can be empl cover old floors in a manner economical and durable by m tonguing and backing, which strength to the parquet, and render fectly independent of the sub-floor, as lately shown. Laminæ of parque

used for wall linings, panels, and ceilings. ahogany, wainscot, walnut, teak, and other rd woods enable the architect to produce a corative effect which no painted woodwork s capable of giving. The use of orna- ntal and hard woods for framing, over- rs and overmantels, and other indoor nery has also received an impetus. The lonial and American exhibits, especially se from Canada, in the recent Exhibition South Kensington showed the capabilities hard wood for decorative joinery. We do mean to say that these specimens were d examples from an artistic point of w, but they exhibited the progress made workmanship, and the pleasing combina- ns of woods in framed work. Highly orative results were shown in red cedar, ewood, black bean, tulip, and other oured woods. The exhibits from South stralia and New South Wales, including ironbark—a very heavy and hard wood— satin-like milkwood, used for bedroom niture, which takes a good polish, the neysuckle, and various species of eucalyp- , were both interesting and instructive. e working qualities of many of these onial timbers have been shown to be rthy the attention of architects. We have, instance, the jarrah wood of Western stralia, now in much repute, although wn and tried many years ago, and with ich the roof of Herne Church, in Kent, has nreroofed. In the experiments undertaken Messrs. Ransome, of Chelsea, many of se hard and decorative woods left their chines with a very clean, smooth finish. aight and circular mouldings were also ned out with excellent finish without the of sandpaper. These woods are destined ore very long to take the place of the inary materials, and they are only aiting the attention of architects.

The reports published some time ago by ssrs. Ransome show how excellently many the hardwoods of the Australasian colonies n be worked and adapted. Last week we blished a letter from Mr. James Green, of *Australian Builder and Contractors' News*, lney, New South Wales, in which he calls ention to the value of the hardwood and amental timbers of Australia, and also to aper on "Some Ornamental New South les Timbers," read before the Sydney chitectural Association by Mr. J. H. iden, F.L.S., curator of the Sydney hnological Museum, to which we briefly erred last week. A technical knowledge the Australian ornamental woods is not perfectly acquired; it is of interest to w that the Forestry Department of New th Wales established by Sir Henry Parkes aking the matter in hand, and we may k for the time when ornamental joinery l become a greater accessory to interior oration than it is at present.

NONCONFORMIST CHURCH BUILDING.*

By James Cubitt.

CHAPTER III. (*continued*).

2. ARRANGEMENT OF PLAN.

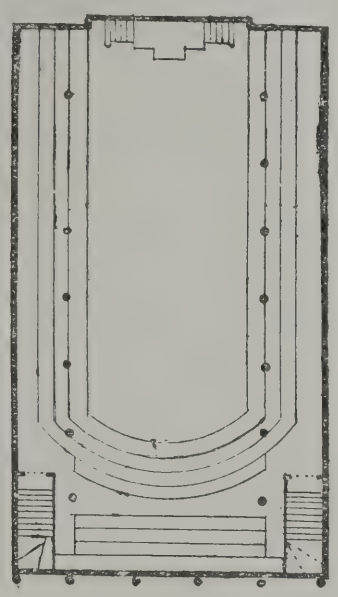
(b) Plans Suitable for Galleried Churches.

WE pass now from the cases in which the whole congregation is placed in the ound-floor area, or in which there is, at st, only a small end gallery, to those in ich there are galleries, or a continuous lery, round most of the interior. With s change of type, many plans otherwise d become unsuitable. Some of them, en galleries are added, prove inconvenient; ile others become ill-proportioned and rtistic. The unfortunate thing is, that se evils do not keep such plans from being

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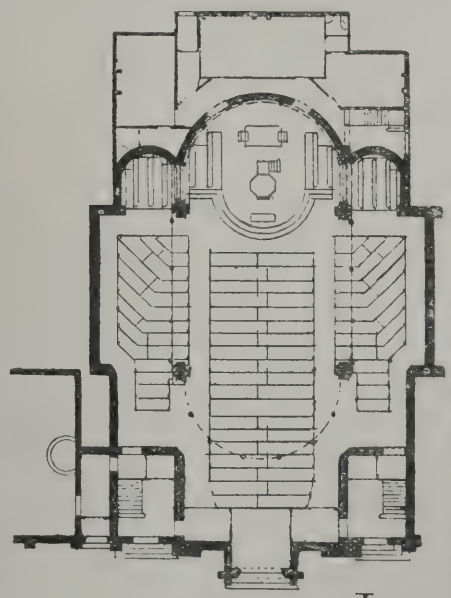
used and re-used for galleried buildings. Few people seem to suspect that any special treatment is desirable or even possible for such places. Hence galleries have got a bad name, and people who pretend to taste often assert that where there are galleries good architecture is impossible.

All this arises from the fact that in the



The Meeting-house Gallery."

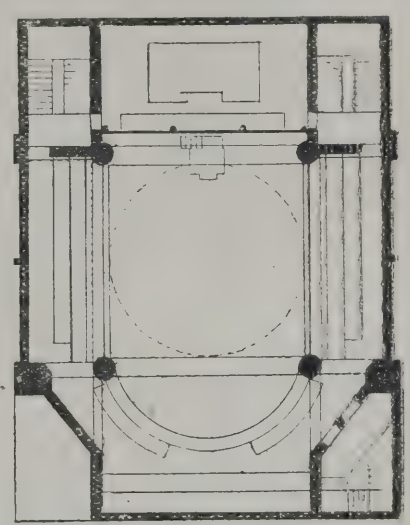
dark ages of Nonconformist church building, when there was little care for convenience and none at all for beauty, a clumsy and awkward type of gallery came into use. This type, as it showed itself in the meeting-houses of the last century, we may call the "meeting-house gallery." It is about the crudest attempt ever made at providing seats for a certain number of people over the heads



J

of the rest; and yet, so powerful is the influence of habit and custom, that in multitudes of cases it is repeated to this day. It is a failure practically, and a horror artistically. It is of the wrong shape, to begin with. The people at the sides look across at each other, and, near the further end, cannot turn towards the pulpit without discomfort. It covers up too much of the ground-floor area, and leaves too little open space. If the roof is in one span, it generally comes down close upon the side-galleries, and still more upon the end gallery, so that the occupants are half-suffocated with the hot and vitiated air from below. If, on the contrary, the roof is carried by columns (as in the above plan of "a meeting-house gallery"), these columns are numerous enough to be considerably in the way. These are merely some of the material evils of the type. Its artistic faults are unpardonable. Its shape on plan has no relation to that of the building it is thrust into. It is a gigantic misfit. And it looks far worse in modern Nonconformist structures than in ancient ones. There its uncouthness only matched the uncouthness around it. But thrust into a modern church and decked out with an "ornamental" front, it is indeed a thing to make the judicious grieve.

A mere oblong plan, whether divided lengthwise by rows of columns, or roofed without them, from wall to wall, is seldom well adapted for galleries. What galleried churches need is rather width than length. They need plenty of air, plenty of light, plenty of open space for the people below. Then, again, both the people in the area and those in the gallery should be grouped around the pulpit, and able to face towards it without discomfort. In other



K

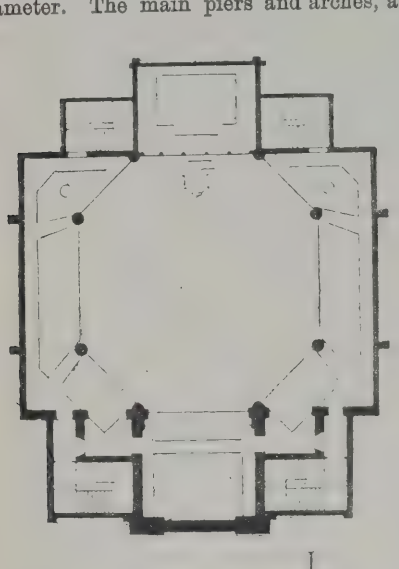
words, the typical galleried church should be more or less of the "central area" form, like those of the plans J, K, and L, and not of the oblong or "avenue" form already shown in D and E, as well as in the above example of the "meeting-house gallery."

The church whose ground plan is sketched at J has three galleries, indicated by dotted lines. They are supported by granite shafts with moulded arches of stone. The four main piers carry an octagonal lantern-tower, about 36ft. in outside diameter and 140ft. high. This, which is roofed internally at rather more than 50ft. from the floor, is pierced with sixteen large lancet windows. The main light is thus concentrated on the central space around and in front of the pulpit. Special care was taken to prevent echo and reverberation, and the building is considered a good one for speaking in. A glance at the plan will show that the piers scarcely obstruct the view from any of the seats.

The plan marked K is that of a much smaller building than the last. It occupies, and all but fills, a very contracted site, shut in on three sides by lofty houses. No light could be obtained from either end, and very little from the wall to the left. In this case, therefore, a lantern-tower was placed over the central area, and by it, aided by the

windows in the street-front, the place is lighted. The galleries rest on stone arcades. The main arches are pointed, and above them, the square central space is brought into a circular form by means of spherical pendentives.

L is the gallery plan of a large church, seating altogether 1,600 persons. The central area here is an octagon of 60ft. in diameter. The main piers and arches, and



L

the arcades below the galleries, are all of stone; but from the pews there is hardly any obstruction to the view of the pulpit. The organ, partly sunk below the floor, so as to give abundance of height for the development of sound above the tops of the pipes, stands in a recess more than 30ft. wide, at the further end of the church. Staircases adjoin each corner of the building. The tower, in the centre of the front, is not simply a feature added for ornament. On the contrary, it contains no fewer than 240 sittings —95 on the ground floor, and 145 in the tower gallery, and forms as important an adjunct to the interior as to the exterior of the building. The idea was partly to make the tower pay a large proportion of its own cost, by the practical use which was thus made of it, and partly to avoid putting up the usual slender imitation of a church belfry-tower and spire. *That* groove, in Nonconformist practice, has really been run in a little too long, and worn a little too deep.

The above are only a few of the endless varieties into which central-area plans may be shaped. The central-area type, in others of its forms, can be equally well adapted to wood, or to iron construction. The larger a building is, the more useful this type will be found, because on it more than on any other, the whole congregation can be kept within easy range of the minister's voice. No doubt it presents the architect with many problems, and problems for which there are no ready-made solutions; but this is only another way of saying that it will make for interest, freshness, and originality.

Some of the commonest sins of the ordinary gallery against practical convenience and against sanitary laws have already been noticed. Far too little breathing space is often given above the top level, especially where one roof extends from wall to wall. The columns, again, if they are in the regular two rows from end to end of the building (another long-travelled and deeply-channelled groove), cause even more obstruction to sight in the side galleries than on the ground floor. And still further, it is not a very rare thing to find the levels of the gallery seats so managed that the people behind can neither see nor hear the speaker. In most cases a little care will prevent this evil. It can only become a serious difficulty where there are side galleries, and where, at the same time, the pulpit is not on the central line of the building: so that this particular combination is not often to be recommended. Galleries, again, which are divided into many widely-separated sections, are not beloved by preachers, one of whom complained some time since that half his congregation were peeping out of holes and corners, or were perched in unexpected positions about the roof.

THE SYMBOLISM AND ICONOGRAPHY OF EARLY AND MEDIÆVAL CHRISTIAN ART.—XVII.

By GEORGE ASHDOWN AUDSLEY, F.R.I.B.A.
(Author of "Handbook of Christian Symbolism," and several works on Architecture and Art.)

THE ICONOGRAPHY OF THE CREATION.

THERE are no biblical subjects which have called forth the imagination and skill of mediæval painters and sculptors, in which we should expect to find God the Father—the Creator—more directly and clearly indicated in portraiture than in the great scenes of the Creation of the World. In these scenes, whatever may have been the practice of artists, oppressed more or less with traditional and personal timidity and awe, it was incorrect to depict any Person of the Trinity save God the Father. We have already pointed out that the Creator was frequently and in certain periods invariably represented under the portraiture of God the Son—or, at all events, by a figure which art has recognised as that appropriate for the Second Person of the Trinity.

In the interesting series of subjects setting forth the different acts of Creation, as described in the Old Testament, which adorn the nave walls of the Cathedral of Monreale, near Palermo, and which it is now our pleasing task to illustrate and describe, the portraiture of the Creator is of that youthful, bearded type alluded to in our preceding article (XVI.) as appropriate, according to the accepted canons of art, to God the Son. On carefully examining the entire series of mosaic pictures which cover the walls of this remarkable church, we find that the countenance of the Creator, in the scenes of the Creation, whilst not precisely the same, very closely resembles that given to Jesus Christ in the scenes of His Ministry and Passion. It must be noted, however, that the nimbus which invests the head of the Creator is circular with a perfectly plain field, whilst that investing the head of Christ is invariably tri-radiated. The reasons for this distinctive treatment are of course open to question, but to us they seem quite plain. In the case of the Creator no special indication of the Trinity seemed called for—the power of the Deity was manifest; but in the case of the Saviour, who appeared as a man amongst men, there was every necessity, in view of the universal teaching of the Church, for clearly marking Him as one of the Persons of the Trinity, invested with the full authority of the Godhead. It seems quite evident, we venture to think, that the artists of the Monreale mosaics sought to distinguish between their portraitures of God the Creator and God the Saviour, whilst they hardly ventured to depart from the early custom of depicting the Creator in the form of a young man resembling the accepted portraiture of Christ. In the preceding article we have spoken at some length respecting this early custom; but before entering on the chief subject of the present article, we may add to what has been already said the following remarks by Lady Eastlake in "The History of Our Lord." "The connection between the History of the Creation and the History of our Lord is immediate. In all religious Art, as in all sound theology, Christ is the Creator, in the active and visible sense, o the First Day, as truly as He will be Judg on the Last Day. This doctrine is frequent asserted in the Scriptures—indirectly in t Old Testament, directly in the New. God declaration to Moses, 'For there sha no man see me and live' (Ex. xxxiii. 20 shows that His appearances to Ada and to the patriarchs were not in H own person. This declaration is repeat in the broadest terms in the New Test ment, 'No man hath seen God at a time' (St. John i. 18). The direct asserti that the powers of creation were vested the person of Christ is also contained in t words commencing the Gospel of St. Joh 'In the beginning was the Word, and t Word was with God, and the Word w God. The same was in the beginning wi God. All things were made by him; a without him was not anything made th was made.' This all-embracing authori for the chief mysteries of our faith is aga repeated by St. Paul as regards the creato ship of Christ, 'And to make all men s what is the fellowship of the mystery, whi from the beginning of the world hath be hid in God, who created all things by Jes Christ.' (Eph. iii. 9.) Finally, such bei the warrant for this dogma, it takes place among the articles of the Nice Creed, 'Being of one substance with t Father; By whom all things were mad Here, therefore, we find full indication the system of early Art, which, with revere consistency, never represented the Person the Father, except by the Hand from t cloud, or from a portion of the circle whi typifies heaven; and which invariably sho us the Son, 'the express image of t Father,' as the outward and visible ma festation of God, whether in the creation the world and of our race, or in the varic other occasions, in the Old Testament, wh the presence of the Almighty is made kno to man."

The student of Christian Iconograp must bear in mind that such remarks only apply, so far as Art is concerned, *early* art; and in arriving at a reasona conclusion regarding the intention of t early artists, in Old Testament subjects will also be well to bear in mind one fac namely, that as God the Son is "the expr image of the Father," those artists, essaying to depict God the Father, co only represent Him as identical in appe ance with God the Son. A noteworthy ample of this is to be seen in Fig. 5, Arti V. It hardly follows, we think, that wh we find the Creator, in the scenes of Creation of the World, represented by figure strongly or even perfectly resembli that which appears in portraitures of Chri we are immediately to say that the ar intended to convey the direct idea that G the Son was alone the Creator of the Wor Didron's words should be remembered such a juncture: "It is easy to understa how the Father, the Son, and the Holy Sp might concur in the same actions, and ma fest themselves at the same time in various events recorded in the Old Tes ment, because the Trinity is doctrina indivisible, and every act performed by of the Persons is performed collectively the three Persons of the Trinity. From moment, however, that a single Person represented in art, it would seem fit t God the Father alone should be shown in scenes of the Creation, just as God the S should appear in the scenes of His Passi and God the Holy Ghost at Pentecost."

It is in this reasonable light that we l upon the scenes of the Creation, in Cathedral of Monreale; and we do not thi simply because the portraitures of Creator bear a general likeness to those Jesus Christ, in certain other mosaics, t the artist had any desire to convey the i that God the Son was alone the Creato

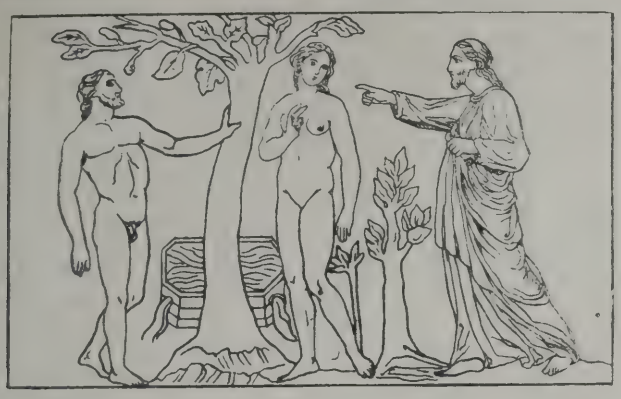


Fig. 51.

he World. Had he intended to convey the dea, why did he omit the tri-radiated imbus, which, in the scenes from the New estament history, invariably distinguishes esus Christ?

In the bas-reliefs of the Creation, by Nicola Pisano and his pupils, in the Cathedral f Orvieto (13th century), the Creator is epresented in the form of a man whose age ight be about thirty. At all events, He ppears no older than Adam, whom He reates. His head is not invested with a imbus of any kind. In the accompanying lustration, Fig. 51, which is copied from he bas-relief of God appearing to Adam and ve after the Fall, at Orvieto, it will be een that the Creator appears in the form s above described.

The figures of the Creator in Ghiberti's elebrated bronze doors of the Baptistery of lorence, are in the form of a man of iddle age, with a dignified and thoughtful ast of countenance; both hair and beard re long and flowing. Adam appears as a uch younger figure. In the fresco painting f the Creation of Adam and Eve, by Michael ngelo, in the Sistine Chapel in the Vatican, he Creator appears as a man of venerable ountenance, especially so in the picture of he Creation of Eve. His form is robust, s if full of years, and His hair is flowing, nd His beard is long. The figure is here illy draped. In the Creation of Adam, the reator is a robust figure, lightly draped, ith arms and legs almost entirely un-overed. His hair and beard are not so long s in the other subject. He appears upported and reclining on wingless and outhful angels, with a background of flowing rapery. In the fresco by Raphael, in the atican, in which God appears to Abraham, he Deity has the form of an aged man with strongly-marked countenance replete with ignity. In none of the instances just entioned does the portraiture of God the ather appear invested with a nimbus.

In the following brief remarks respecting he Days or Scenes of the Creation, as ndered in Christian Art, we shall specially eat of the interesting series of mosaic ctures on the nave walls of the Cathedral Monreale; but we shall also allude to her series, the details of which may help s to elucidate the subject under review.

FIRST SUBJECT.

Text.—"In the beginning God created the eaven and the earth. And the earth was without rm and void; and darkness was upon the face of e deep. And the Spirit of God moved upon the ce of the waters."

It will be seen on an examination of the companying illustration, Fig. 52, the first the series at Monreale, how literally the tist has rendered, in the symbolic language Christian Art, the idea conveyed by the ove text. In the upper part of the sub-ct the figure of the Creator is represented if issuing from, and upheld by, the symbol eternity, the circle of heaven. His head invested by a plain circular nimbus, and His open hands are stretched out towards the "face of the deep." Falling vertically from His breast are three parallel rays, joined in one, and doubtless intended to express the Triune. Descending on the rays is a dove invested with a plain circular nimbus, the symbol of God the Holy Ghost—"the Spirit of God" moving "upon the face of the waters." Immediately above the "deep" and the "waters," which occupy nearly all the lower half of the subject, is a broad dark band, evidently intended by the artist to express the idea conveyed in the words "darkness was upon the face of the deep." We now come to what is at once the most curious and the most perplexing feature of

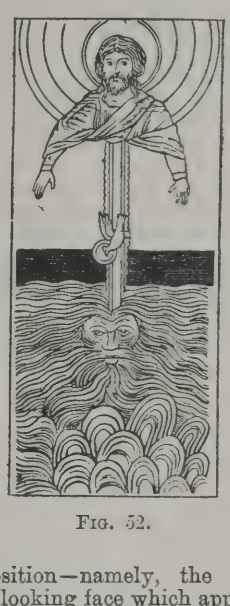


Fig. 52.

the composition—namely, the mysterious and angry-looking face which appears in the waters, with its hair and beard of flowing waves: it will be observed that the descending rays fall directly above the face. Different opinions have been hazarded as to the signification of this water-born countenance. Lady Eastlake, in speaking of this interesting mosaic, remarks: "This head, or rather face, may be considered at first sight a relic of that classic impersonation which clothed the elements of nature in human forms. But it is far more probably an attempt to literalise the very words of Genesis—the same in Hebrew, in Greek, and in Latin, as in English—'the *face* of the waters.' In the Hebrew Bible and in Symmachus (Greek Bible) the word used both for the 'face of the deep' and the 'face of the waters' is the same figurative term, put instead of surface. In the Septuagint, and in the Vulgate, the word face is applied to the deep 'super faciem abyssi,' but not in the second passage, which is thus expressed, 'Spiritus Sanctus ferebatur super aquas.'" We here hazard the conjecture that the artist's intention, in forming a face, with its watery hair and beard, in the midst of the previously silent and motionless waters, was to indicate that life and motion were imparted to them by the Spirit of God moving on their surface. This reading of the artist's aim seems to be supported by the fact that the face appears immediately under the rays which descend from God, and on which the Divine Dove is shown descending. In no other pictorial rendering of the words, "And the Spirit of God moved upon the face of the waters"—"Spiritus Dei ferebatur super aquas"—known to us does a face or anything resembling a disturbance appear in the waters upon which the Spirit of God is represented moving.

Didron gives a very curious illustration, taken from a miniature of the 14th century. In this picture, God, in the likeness of the Son, invested with the tri-radiated nimbus, and bearing the orb (see Article VI.), is shown in the act of creating two circular bodies or discs, one dark and the other light. Didron interprets this subject as the creation of heaven and the earth; but we are inclined to accept it as the creation of light, and the division of the light from the darkness (Gen. i. 3, 4). Whatever the true intention of the artist may have been, the portion of the subject which claims our special attention is that in which the Spirit of God is shown moving on the face of the waters. About the centre of the picture, and midway between the two discs, appears a horizontal band, marked with waves, and, of course, indicating the watery deep. Upon the surface of these waters is depicted a naked infant invested with the tri-radiated nimbus. Instead of the usual symbol—the Divine Dove—the Holy Spirit is here portrayed as a newly-born child floating on the surface of the waters.

If we turn to the quaint and interesting pages of "Cædmon's Metrical Paraphrase of Scripture History," an illuminated manuscript of the 10th century, preserved in the Bodleian Library at Oxford, we find a highly curious subject, commonly designated "The Uprearing of the Firmament," and "the Spirit of God upon the Deep." The general treatment of the subject is noteworthy and interesting to the iconographist. It consists of the greater portions of two large discs, the lower being in front of, and partly overlapping, the upper disc. Seated on the edge of the lower disc, and nearly in the centre of the composition, is the figure of God the Creator, youthful, beardless, invested with the divine nimbus, and pointing downwards with His left hand. Above this figure is an angel holding a hollow vessel, inverted, from which issue diverging rays of light. The lower disc seems to sink, to nearly the extent of one half, behind what is evidently intended for "the waters" or "the deep." Issuing from this is an angel with outspread wings, hiding his face with his garment, as if to shield his eyes from the newly-created light which streams down from above. Here we see the Spirit of God depicted as a winged man or an angel, draped, but without any special attribute of divinity.

There is an extremely interesting series of the subjects representing the Days of Creation, in one of the cupolas in the entrance vestibule of the Cathedral of St. Mark, at Venice. The series of mosaic pictures is arranged in two zones in the cupola, the subjects commencing in the first zone with that representing the Spirit of God moving upon the face of the waters. Here we find the Divine Dove, invested with the nimbus, hovering over an undefined space of dark wavy lines.

The examples we have illustrated and commented upon present the three leading treatments of this subject, the Spirit of God being symbolised by the Divine Dove, and represented in one example in the form of a newly-born infant, nimbed, and floating on the waters; and in another example as an angel, winged, without a nimbus, and cover-

ing his face with his garment. Water is in every case represented; but it is only in the Monreale mosaic that we see a very marked attempt to express, in a conventional and symbolic manner, the "darkness" that "was upon the face of the deep." It is true, however, that in the St. Mark mosaic the waters are represented as if under a dark cloud or fog.

SECOND SUBJECT.

Text.—"And God said, Let there be light, and there was light. And God saw the light, that it was good: and God divided the light from the darkness. And God called the light Day, and the darkness he called Night. And the evening and the morning were the first day."

In treating the subject of the First Day, artists have had a two-fold call upon their powers—namely, in the delineation or the symbolic representation of the creation of light and the subsequent division of the light from the darkness. It appears, however, to have been purely a matter of individual taste which of the two events were to be most prominently expressed by their art, or which one was to be treated to the exclusion of the other. It may be pointed out that it was possible, and, indeed, a simple task for these Mediæval artists to

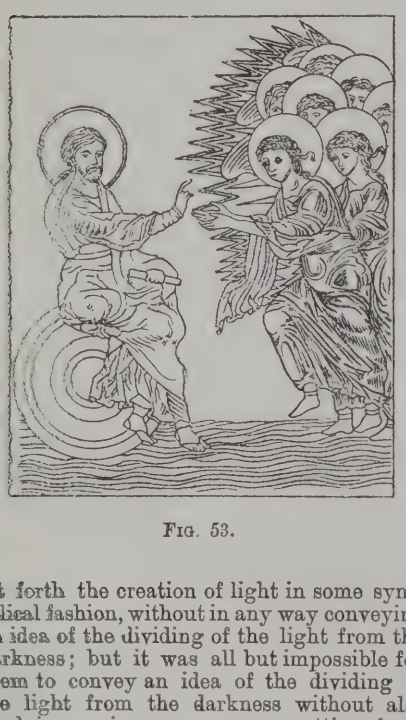


Fig. 53.

set forth the creation of light in some symbolical fashion, without in any way conveying an idea of the dividing of the light from the darkness; but it was all but impossible for them to convey an idea of the dividing of the light from the darkness without also implying or in some manner setting forth the preceding creation of light. This is, of course, obvious. In the subject in the series at Monreale we find an illustration of the former, whilst in that in the series in St. Mark's vestibule, we see an illustration of the latter treatment.

Turning now to the Creation of Light in the Monreale series, an outline sketch of which is given in Fig. 53, we see the Creator, in the form already described, seated upon what may be taken as a zoned globe or disc. This peculiar object, which appears as the seat of the Creator throughout the seven subjects of the series, is evidently intended to symbolise heaven, which is the throne of God. The blue tints which appear in the zones or rings support this symbolism. The Creator holds in His left-hand a closed scroll, whilst His right-hand is stretched forth in the act of creating light. The light called into existence is indicated by the numerous pointed rays which dart towards Him in advance of a group of angels. It would appear from this treatment that the artist held the theory, also held by St. Augustine and others, that the angels were called into existence on the First Day, when God said "Let there be light." We must either accept this reading, or look upon the angelic forms as impersonations of light and vivid brightness. At the time light was created there was no dry land, so the artist has placed the waters as the footstool of God. Perhaps he had the Psalmist's words in his mind, "The Lord sitteth upon the flood; yea, the Lord sitteth King for ever" (Ps. xxix. 10). This subject is treated in a most direct and simple manner; and, as we have said, illustrates the creation of light without touching in the slightest degree on the subsequent event, its division from the darkness. Here there are light and beings of light, without a shadow or indication of darkness. If we turn to the First Day, as presented in the Cathedral of St. Mark, we observe a widely different artistic treatment, in which the division of the light from the darkness is the leading motive. Here the Creator, youthful, beardless, with long hair, invested with the tri-radiated nimbus, fully draped, and carrying in His left hand a cross-topped wand or sceptre, stands with right hand stretched out. In front of Him is a red globe with lighter-coloured zones upon it, and from the edge of the first zone dart six rays of bright light, directed downward, and spreading slightly. Beyond this red orb is another smaller black orb, also zoned, and having six rays of dull light issuing from the edge of the first zone. Behind the red globe stands an angel, with outstretched arms and wings, and gazing downwards, as if in surprise, at the bright light. The body, head, right arm, and right wing are in a light colour; whilst the left arm and wing, which stretch towards the black globe, are represented in a darker tint. As we have observed, the leading idea on the part of the artist is the division of the light from the darkness; but at the same time he had to introduce the newly-created light. The two globes are evidently intended to symbolise the Day and the Night. The division of the light from the darkness is expressed by a light and a dark globe or disc in the miniature of the 14th century already alluded to, in which the Spirit of God is represented as a newly-born infant floating on the waters. In Cædmon's "Metrical Paraphrase" there is a subject in which, if it were not for the accompanying inscription—"How He divided day from night"—one would certainly fail to understand the limner's intention. The subject is contained in two overlapping discs. In the upper stands the Creator; and in the lower are drawn a number of plant-like forms, as if growing from the ground; above which, as if in the sky, are numerous stars. On the First Day neither the heavenly bodies nor plants were created, but these facts the Saxon limner seems to have overlooked. It is much more probable, notwithstanding the inscription in Anglo-Saxon characters, that the subject was intended for the events of the Third and Fourth days. Such a reading is supported by the contents of the third disc, placed above the two we have mentioned, which present a bird and a stag, evidently intended to set forth the creation of birds and beasts, which took place on the Fifth and Sixth Days.

It is quite clear that the Mediæval artists found all their powers insufficient to express, in any but a purely symbolical method, such a marvellous event as the creation of light. They did their best, however, and we cannot deny their ingenuity and bravery in attempting to do what they have done in this direction. If we turn to the works of the greatest of painters, we find in his "Creation of Light," in the Vatican Loggie, an attempt not a whit more successful than that of the humbler artist of the Monreale subject. Raphael represents the Creator, in the form of a brawny old man, draped, but with bare feet, rushing, with exaggerated action, through clouds of smoke, amidst which are vivid flames. Lady Eastlake, speaking of this painting, correctly remarks: "Here Almighty is seen rending like a thunder the thick shroud of fiery clouds, letting that light under which His works wer spring into life. Not that this re approaches a whit the nearer the reve fact. To the unassisted reading of the ey tells no especial tale; it may just as wel interpreted as the Almighty amid clo and fire and thick darkness on the to Sinai, or as an episode in the Battle of Giants." The concluding remark is guar teed by the fact that the figure of Almighty has absolutely no attribute divinity—nothing in the shape of a nim is introduced.

(*To be continued.*)

A NEW PROCESS FOR HARDENING A PRESERVING BUILDING STONES

After the many attempts and failure find some method that will arrest the integrating agencies which affect our buil stones, it is satisfactory to know that a servative solution of a kind that can be re applied to stone blocks on a large scale has found, which, from the experience gaine ten years' use in France, Switzerland, Italy, other Continental countries, promises to eff remedy at once preventative and preserva Many of our scientific readers are acquai with the methods and processes that have suggested and applied, with more or less suc some of them like paints or varnishes, o that act mechanically or like silica, a third kind of processes which operate mechanically and chemically, like app tions of alkaline silicates. The objection the first named are that a paint or ping has the disadvantage of discolou the stone, imprisoning the moisture, causing disintegration by the action of and requiring repeated applications. The se class of remedies, while they fill the pores an indestructible substance, do not preserv intervening walls, and with regard to the class, the stone salts are soluble and absorpti moisture, and, besides, cause a white ef escence which disfigures the stonew Unfortunately, these processes deposit in pores of the stone a substance which, in of preventing decomposition, serves to mote it, as in the case of "li glass" processes introduced by M. Fachs M. Kuhlmann. The silica introduced bec hardened; but the agent employed to decon it—a salt of potash—effects the nitrificatio the stone. A further drawback to some of methods is that they require to be applied i laboratory of the chemist: the stone, in fact to be placed in vacuum chambers or immerse that the solutions may effectually enter the p therefore they are expensive, and often im ticable to adopt in the case of a large buildi

The proposed remedy is one which cert has the merit of obviating these disadvant The Bath Stone Firms, Ltd., of Bath, acquired the sole right to use and sell method, which is called "Fluate," an abb ated term to denote the process known as silicatisation. Four conditions are laid do essential to practical success in adopting method to increase the resistance of b ing stones to atmospheric action; these stated as follows:—"1. The process shou largely chemical. 2. Whatever change is eff in the stone, the resultant products sh be themselves insoluble. 3. The process sh not alter the natural appearance of the stone Its cost should be moderate." The Bath Firms (Limited) accept two other condi mentioned in Messrs. Rivington's volum "Materials" in "Building Construction," work is referred to in the treatise on "Flu These are that any preservative solution to practical value must be (1) "economi applicable on a large scale," and (2) "ca of application to the surface to be tected by means of a brush." After se years of investigation and experiment, the cess we have briefly described, discovered b eminent French chemist M. Kessler, of mont-Ferrand, has proved itself to comply the conditions. The "Fluate" process no fulfils these requirements, but is said "to solved the problem of the permanent preserv

n decay of certain of our building stones and er materials." Its value as a protection Bath stone has been fully tested by ıal exposure to the atmosphere. The ıltant products are insoluble. The Bath ne Firms thus describe the process:— 'here exists in nature a mineral whose pro- ty it is to remain unaltered when exposed to ıospheric influences. It is harder than marble, as transparent as glass. Employing methods wn only to himself, M. Kessler procures by ns of this mineral an agent with which he olves silica. The silica being thus rendered id, is in that state readily absorbed by the ıe. By readding lime to M. Kessler's new luct the original mineral is reformed, and at the e time the silica is again liberated in a solid e. The lime necessary to bring about these tions must be furnished by the stone itself, as the degree of efficacy secured by the pro- depends upon the proportion of lime em- ed, the proportion of lime contained in any n stone is an important factor. Bath stone ıishes conditions that are practically perfect; ards of 95 per cent. of it is carbonate of , and, therefore, what is virtually the entire s of the stone is, so far as it is impregnated the solution, transmuted into a substance ch is practically imperishable. No sooner the liquid Fluate enter into the stone ı it solidifies, and instead of the one mineral onate of lime, we get two other minerals, of which are insoluble, and unaffected by ospheric influences." To render the Fluate e penetrating, certain oxides are used, and e become insoluble. These insoluble sub- ces are unaffected by acids, the process ents vegetation, the stone retains its natural arance, and is not rendered glossy; the cost is said to be moderate, no skilled labour is ssary. One pound weight of crystals is cient to treat, with the required two sings, at least 40 superficial feet of ework. The price is 3s. 4d. per lb., l to 1d. per superficial foot of stonework. he Fluate can be applied from a ladder, like ewash, no scaffolding is required, and two s are sufficient. The pores of the Bath stone ıot sealed up so entirely as to prevent the ture in the stone evaporating—a most im- ant condition of the Fluate process; and it ated that delicate experiments have proved, r degrees from 50° to 380° Fahr., that the nsion and contraction of the fluated and ated stone are practically the same. Moist from 50° to 212° produced the same lt, so that no injury can arise from un- l expansion. The capillarity tests also that fluating reduces the absorption by lary attraction of the open-grained stones ne-half, and of close-grained stones by two- ls. The Fluate also hardens weatherings, floors and treads, rendering them more ting to wear.

he process has been applied to several im- nt French buildings, including the Louvre, Arc du Triomphe, New Opera House, the onne, the Ministry of Justice, Hotel de , Trocadero Palace, &c., &c., and the rials used in the process have be- ordinary articles of commerce. That French Government should have adopted process is a guarantee of the value he system, as the stones used in Paris largely composed of carbonate of lime, are easily worked. Full directions for using te on Bath stone are given in the appendix. understand that the process enables any ur to be imparted to the stone that be desired. We have no space to further into the question, but with hardening and preserving process, we hope again to see Bath stone in nany varieties becoming largely used in rn buildings. We can recommend to the us attention of the profession the little book Fluate," issued by the Bath Stone Firms, as which will repay perusal. The letters from ch architects and others who have had rience of the process are instructive and incing evidence.

WATERWORKS MEMORANDA.

HERE are two or three things, said Mr. Spencer Harty, the Dublin City Engineer, paper read before the Dublin meeting of Incorporated Association of Municipal and ary Engineers, which I have personally learned during the construction of the works, the calling of attention to which may be of use to some engineers engaged in either designing or maintaining waterworks, but especially to the junior members of the profession. The remarks may be commonplace, but very often common-place things, though most useful, are those least regarded.

Never have a vertical joint in puddle; in order to be of any service it must always have a seating; we had a serious and most expensive leakage arising from the neglect of this most simple precaution on a portion of our works, although we had most eminent men as consulting engineers. At stated intervals clean your filters down to the bottom, sides and all, including either rubble drain or perforated pipes—especially if the water is at all peaty. Filters should be made at the service reservoirs, and water after filtration never allowed to see the light until it is delivered in the houses. In carrying pipes through banks, make sure that they are carried entirely under the seat of the bank, and are arched over either in a culvert or otherwise, as they are then relieved from the pressure of the subsiding bank on top, and so free from danger, and can also be got at for repairs if necessary.

Never allow a portion of a pipe to rest on rock or masonry whilst another portion is on clay, as if so it is sure to be broken across.

All air-valves on large mains ought to have screw-valves fixed between them and the mains, as I have seen many cases of charging mains, where from either the air-ball sticking in the bottom or from some other cause it did not act, and consequently water had to be again shut off, until the ball was set right; also if main is working and repairs required to air-valve, the water must be shut off a long section of main—always a dangerous and troublesome operation, both as regards shutting off water from mains under heavy pressure and recharging—whereas if there was a screw-valve between the main and air-valve there need be no trouble. A long length of main with but little rise or fall eminently requires the precaution of air-valves, as air lodges in such.

I have also noticed a curious fact. During a severe winter some years ago, and whilst there was a heavy fall of snow, I found that where our mains crossed outside the canal bridge at Leeson-street and were fully exposed without any protection, that the snow did not remain on them. I took up a handful of it and threw it on the pipes, but it immediately melted, showing that the friction of the water caused a certain amount of heat in the pipes.

CHIPS.

In the grounds of Whiteshill Vicarage, near Stroud, have been found fragments of Roman pottery, calcined bones, and large-headed nails characteristic of the vicinity of a Roman villa. Like the Woodchester pavement, the first finds were but 2ft. below the surface, when a stratum of soft brick and cement, mixed with charcoal, was reached. The coins found are in excellent preservation.

On Saturday the members of the Dundee Institute of Architects visited Stirling, and examined the East and West Churches and the Castle, afterwards dining in the Golden Lion Hotel.

New Church schools have just been completed for St. Mary's parish, Truro. Mr. Swift, of that city, was the architect.

The parish church of St. Andrew, Stanton-on-Hine Heath, is about to be restored at a cost of £800, from plans prepared by Mr. A. B. Deakin, of Shrewsbury.

The new theatre erected at Cheltenham will be opened on Thursday next, Oct. 1. The plans were prepared by Mr. F. Matcham, of London, the contractors being Messrs. Bradney and Co., of Wolverhampton. The façade is of red brick, relieved by stone pediments and sills. The decoration of the auditorium is in Louis XV. style, with a slight intermixture of the Italian. The proscenium is 24ft. wide in the clear, and 34ft. high in the centre. The stage has a width of 48ft. and a depth of 45ft. to the curtain line. The theatre is seated for 1,500 people.

The death took place on Saturday of Mr. Robert Austin, for many years secretary of the Amalgamated Society of Engineers. For the appointment, which is worth £300 a year, and is virtually held for life, although there is a formal election annually, there are three candidates: Mr. Eversleigh, of London, Mr. J. Ferguson, of Glasgow, and Mr. Whittaker, of Manchester.

COMPETITIONS.

Cork Courthouse.—The thirteen sets of competing plans for the restoration of the county and city courthouse and offices have been opened, in the presence of the committee of the corporation and the county courthouse commissioners, with Mr. Thomas Drew, R.H.A., president of the Royal Institute of the Architects of Ireland, who has been appointed assessor of the committee. The assessor will, in the first instance, advise the committee as to whether they are in accordance with the conditions laid down and communicated to the competitors, and secondly as to which of them, in his opinion, are best entitled to the three premiums of £100, £60, and £40 respectively. Each set consists of a series of nine drawings, viz.:—A plan of the basement, showing the cells for prisoners, and the method of heating the building; a plan of the principal floor, showing the arrangement of offices and seats in court; a plan of the first floor and offices, four elevations, a cross section, and a longitudinal section. All these are on a scale of 8ft. to 1in., and each set is distinguished by a motto. The conditions have fixed the cost of the work at a maximum, £20,000; but the committee have intimated that they expected it to be done within £15,000. With reference to the front elevation of the building, it has been laid down that the present portico and façade are to be preserved. The other elevations are subject to such alterations as may be found necessary to meet the altered arrangement of the interior.

"Owen Jones" Prizes.—This competition was instituted in 1878, by the Council of the Society of Arts, as trustees of £400, presented to them by the Owen Jones Memorial Committee, upon condition of their expending the interest thereof in prizes to "Students of the School of Art who, in annual competition, produce the best design for Household Furniture, Carpets, Wallpapers and Hangings, Damask, Chintzes, &c., regulated by the principles laid down by Owen Jones." The prizes are awarded on the results of the annual competition of the Science and Art Department. Six prizes were offered for competition in the present year, each prize consisting of a bound copy of Owen Jones's "Principles of Design," and a bronze medal. The following is a list of the successful candidates, with the names of the schools of art of which they are students:—Gertrude Roots, Canterbury: Design for a mosaic pavement, and design for a plate. Edith Gillman, Canterbury: Design for a damask table-cloth. Evelyn D. Foster, Hertford: Design for a mosaic floor decoration. Annie Barnett, Cavendish-street, Manchester: Design for a majolica plate. Arthur Beardsley, Nottingham: Design for an Axminster carpet. William Rawlinson, Burnley: Design for a printed cotton hanging.

Somerset New County Asylum. — The county council having purchased a site near Taunton, and determined to erect a new lunatic asylum for 750 patients, invited several architects well known for this kind of work, to compete. The plans were sent in under motto, Mr. C. H. Howell, architect to the Lunacy Commissioners, acting as assessor. Messrs. Giles, Gough, and Trollope, of 28, Craven-street, London, have been selected to carry out the work, Mr. G. T. Hine, of Nottingham, being awarded second place, and Mr. Jacobs, of Hull, third place.

At Exeter City Council on Friday, a letter was read from the clerk to the Devon County Council stating that the sewage of the city was at present discharged into the River Exe, contrary to the provisions of the Rivers Pollution Act, and asking what steps the council were prepared to take to insure those provisions being complied with. After much discussion it was decided that the matter should be referred to the whole council in committee.

A new chapel for the Wesleyan New Connexion at Aldford, Cheshire, was opened last week. It has been built at the cost of the Duke of Westminster, and is Early English in style, having red Ruabon brick facings and terracotta window dressings. The steep pitched roof is covered with small slates, and has a spirelet for ventilation covered with oak shingles. The interior has buff brick lining to the walls, with patterns in pink bricks and open-timbered roof of pitch-pine, and cathedral tinted glass in the windows. There are 140 sittings. The fittings and also the benches are of pitch-pine. Mr. W. W. Freeman, Chester, is the builder, and Messrs. Douglas and Fordham are the architects.

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ILLUSTRATIONS.

DETAIL OF DESIGN SUBMITTED FOR THE NEW SOUTH KENSINGTON MUSEUM BUILDINGS, BY MR. J. BELCHER.—DESIGN SUBMITTED FOR THE NEW BURY MUNICIPAL BUILDINGS, BY MR. H. HOPTON.—VIEW INSIDE THE TEMPLE CHURCH, NORTHAMPTON.—"THE DESCENT FROM THE CROSS," IN MAYNOOTH CHAPEL.—A BUNGALOW AT NINE-MILE RIDE, BERKS.—BANGLEY FARM, STAFFORDSHIRE.—SELECTED DESIGN FOR NEW PUBLIC LIBRARY, STOKE NEWINGTON.

Our Illustrations.

SOUTH KENSINGTON MUSEUM COMPETITION.

We published Mr. Belcher's design in this competition on Aug. 21 last, when we reproduced his plans for this work. Herewith we print a photo-lithograph of the large detail in further illustration of his principal façade. A reference to the view is necessary to show how the parts come together in the general composition, as the dome sets back considerably from the arcaded part of the building below. The dignified and picturesque introduction of the sculptures between the pilasters affords scope for fine figure-work, and the red-brick walling would give colour effectively. The elongated proportions of the columns in this design is only one of the many departures from the rules regulating the order of orthodox Classic architecture which it intentionally ignores.

BURY MUNICIPAL BUILDINGS.

Last week we illustrated the first and second premiated design in this recent competition, and to-day we print a view of plans of another of the designs submitted. The author is Mr. Henry Hopton, who chose the widest street, known as Haymarket-street, for the main frontage of his building. In this respect his plan differs from the selected designs. The council block is in Haymarket-street, the office block faces Market-street, and the police block is entered from Moss-lane. The plans show how these arrangements have been carried out. The principal entrance in Haymarket-street leads into a large hall and staircase, lighted by windows and a domed lantern over. The reception-rooms are on the first floor, with the council chamber and committee-rooms. The town clerk and surveyor are located on the second floor, with laboratory for the health department in the roof. The caretaker is located on the second floor. The building has been set back from the frontage line, in order to obtain external areas for lighting the basement, and keeping the rooms thoroughly dry. The façades of the building are intended to be faced with Ringley stone, the internal walls to be of brick, and the areas lined with white glazed brick. The roofs are proposed to be covered with green slates. Fireproof floors are intended for all corridors, and mosaic pavements for the chief parts. The principal staircase is designed to be carried out in marble. The cubical contents of the building are 1,594,078ft., which, calculated at 9d. per foot cube, brings out the cost to £59,778.

VIEW INSIDE THE TEMPLE CHURCH, NORTHAMPTON.

I think colour the only medium that could do full justice to this subject. The rich Siena browns of the massive stone pillars set in a background of the sombre greens and greys which pervade the outer walls, the stream of sunshine tempered into rainbow tints as it comes through the coloured glass, all tend to the warm effect with which the whole seems pervaded, and that might well have formed the subject of envy to some of our more ambitious brothers of the brush—all the old and gloomy memories of darker ages melting into dreamland before the brighter-light and broader charity, let us hope, of its latter day observances. "Britton," I see, doesn't seem disposed to commit himself to anything very definite touching the building of this edifice, merely stating "that as the circular part of this church was built by the Templars, I am induced to suppose that it was erected towards the end of the 12th or beginning of the 13th century, just when the pointed-arch style began to prevail." Hence, therefore, we may possibly account for the strictly Norman detail with the pointed form, a feature which he subsequently refers to when he speaks of the church as being "constructed without any regard to decoration or beauty, yet possessing many peculiarities which distinguish it from the other circular churches, and render it a unique example of ancient architecture." J. Donkin.

"THE DESCENT FROM THE CROSS."

Maynooth College is the principal seminary of the Roman Catholic priesthood in Ireland. It is an institution of considerable magnitude, and has occupied the attention of many architects in the various buildings connected with it. Mr. Pugin, we believe, was the architect who first did Gothic work here, and that style has predominated with the architects who have succeeded him since his decease. The present work is being carried out under the supervision of Mr. W. Hague, 50, Dawson-street, Dublin, whose drawing gained the competition for the decorative work and furniture of the chapel connected with the college, and was given in our issue of Jan. 20, 1888. Our present illustration is from one of the considerable number of paintings from the studio of Mr. N. H. J. Westlake, F.S.A., which adorn the chapel of the college. There are also some few other paintings in this chapel, which are not in our list, as Mr. Westlake is not responsible for them. The whole roof, both of chancel and nave, with its ornamentation and figures, is designed by him, and the ninety life-sized three-quarter figures from his studio illustrate the principal early saints—such as the Blessed Virgin, St. John the Baptist, the Four Evangelists, &c.—with the archangels and angels carrying emblems and instruments of the Passion, at the eastern end, and the principal Irish saints and missionaries at the western end. Each figure is surrounded by a scroll and some foliage; on each scroll is written a versicle of the "Te Deum" or some other hymn. It is one of the largest and most complete painted Gothic roofs in the world, and the effect is extremely grand. In the nave Mr. Westlake is at present engaged on the Stations of the Cross or *Via Crucis*. Each Station picture, with its border, occupies a space of 12ft. by 8ft., the figures being a little below life-size. It is one of the largest existing set of Stations, each design being original.* The illustration we give is of the thirteenth station, "Our Lord taken from the Cross." When complete, there will be fourteen pictures of the Stations, which is the usual number now in use. At Coire, we believe, there are fifteen, but it is unusual. The *fourteen* stations are not, as a devotion, of very great antiquity in Western Europe. Four pictures are *in situ*, and four more are in progress. *The ornamental portion* of the roof was carried out from Mr. Westlake's design, by Mannix. The west window, representing a Majesty with adoring Saints, is by Messrs. Lavers and Westlake.

A BUNGALOW, NINE-MILE RIDE, BERKS.

This house, of which an elevation, two key plans, and a bird's-eye sketch are given among our lithographic plates to-day, has been erected on a fine site in this well-wooded part of county of Berks in the neighbourhood of ington College. The interior courtyard fo feature in the plan, with the reception- grouped round it. The contractor was Mr. Humphreys, of Knightsbridge. The roo covered with thatch, and the walls abov brick plinth are finished in plasterwork, timberings to the upper part. The constr of the bungalow is entirely of timber, wit sheetings inside the plastering, where ther air cavity and felt beyond. In execution minor modifications were effected in the of the work. A feature is made of the sta with its arcaded gallery above.

BANGLEY FARM, STAFFORDSHIRE.

This house has recently been rebuilt fo A. B. Foster, of Canwell Hall, Tamwo his Staffordshire estate, from the plan under the superintendence of Mr. T. V Newton, architect and surveyor, of 121, Co row, Birmingham. The old farm building in good condition, having been recently by Mr. Foster's own men, and are exce arranged for the accommodation of hors cattle. The house was very dilapidated, a been replaced by the one herewith illus The walls are built of red bricks, and ar thick, with a cavity in the middle jointe glazed earthenware ties. All the timbe solid stuff, and 8in. thick with hollow an wall on inside of same. The roof is covere local tiles. Mr. Trentham was the builde

PROPOSED PUBLIC LIBRARY FOR STOKE NEWI

Nine sets of designs were received library commissioners in response to invitation. The plans submitted by Bridgman and Goss were selected. The modation asked for was a lending libra contain about 1,200ft.; a reference libra contain about 750ft.; a news and magazine to contain about 1,600ft.; a book store, t tain about 400ft.; and a librarian's of contain about 250ft. The librarian's apar required were a sitting-room, three bed and the usual offices. In the successfu the whole of the public accommodation for is provided on the ground floor. The di apartments are divided by glazed partitio have each their own entrance. The posit the librarian's office gives him complete over the whole. The ground floor is 14ft and the news and magazine room, the re library, and the librarian's office are top- along the whole length. The elevations of red brick and Monk's Park stone, a roof of strawberry-coloured tiles. The is necessarily very plain, as the limit of £2,500.

CHIPS.

A new cemetery is being laid out at the St. Clement's Hill, Truro. The buildings, in chapel, mortuary, catacombs, and lodge, ar rated Gothic in style, and are being erect designs by Mr. Clemens, city surveyor.

The first sod of the reservoir at Burntw the proposed waterworks to supply Market D was cut by the chairman of the waterwor pany on Monday week. Mr. Myatt is the e and Mr. Dale, of Northwich, the contractor

Mr. Jos. Blackburn, of Nottingham, h awarded the contract for the whole of the li conductors for the New Municipal Building bay, India, and the same are now being made by him, and will be fixed on his pate tered system.

The reconstruction of the tower of Barmo church which fell on Sunday week, crushin nave, has already been commenced un direction of Messrs. Douglas and Fordh Chester, the architects of the church. Mr. W of Wigan, is the contractor.

The new main drainage and precipitatio constructed for the Richmond main sewera at Mortlake, will be inaugurated by the Pres the Local Government Board on Monday ne

On Thursday, the 17th inst., the town sioners of Dundalk proceeded to inspect waterworks, and to hold a "house-warmi the new caretaker's house and board-roon reservoir. The water is impounded fr streams at Ballymakallet, and is carried iron pipes to Agnaskeagh, where a reservo acres in area has been formed, supplying reservoir at Fanghart, a mile off, from w water gravitates to Dundalk. Mr. Gaski engineer.

* We say *original*, for in walking through the various churches of this country and Ireland it is unusual to find an original set of stations, and the opportunity of patronising and encouraging religious art is utterly thrown away. Even in the principal London churches one often finds copies (either painted or cast) made in some German or French shops by copyists, who apparently use the set of engravings published some years since from paintings by Fuhrich for their purpose. Of course, they are only piracies, for Fuhrich would have been a wealthy man if he could have had a *royalty*, to which he was justly entitled. These works have usually such a quality as a copy from an engraving may be expected to have.

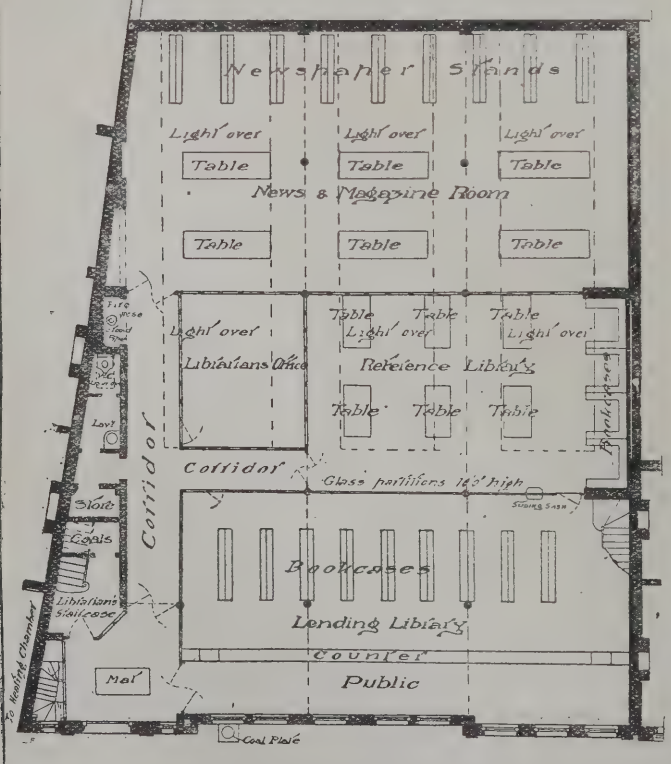


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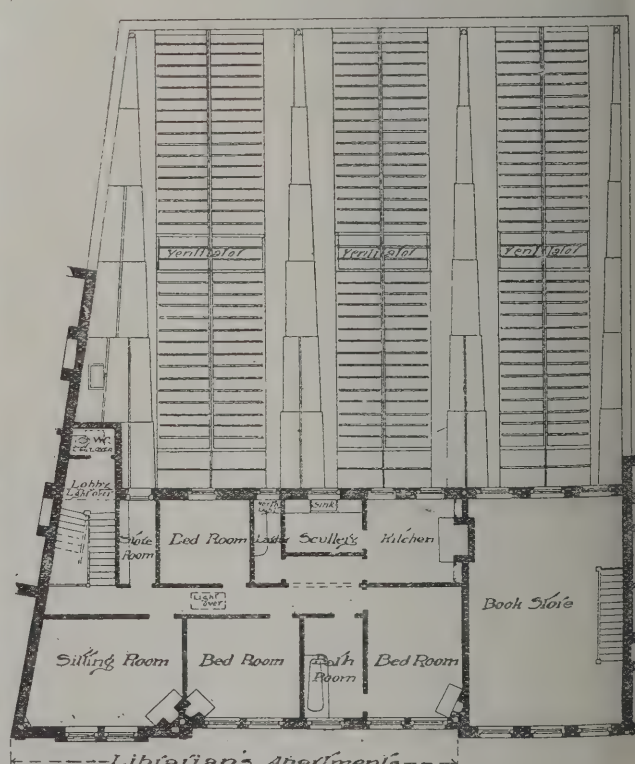
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42 Poultry E.C.



— GROUND PLAN —



— FIRST FLOOR PLAN —

Scale of 10 3 0 10 20 30 40 50 60 70 80 90 100 Feet



BANGLEY FARM, STAFFORDSHIRE.

WAYSIDE NOTES.

WHEN in the City one evening a few days ago, I marvelled to see the waste of good uminating gas evidenced in the thoroughfares ere the new system of electric lighting has en installed. In Queen Victoria-street, for ample, the electric lights were answering mirably, yet the hundred and one gas-lamps re also burning merrily. This seems a sad ste, unbecoming to municipal economics, and lecting somewhat on the character of electricity an illuminating agent. An explanation was hand, however. At the first meeting of the mmissioners of Sewers, Mr. Ross, the assistant gineer to the commissioners, said that the ason why the lighing of gas had been continued streets where the electric light had been tablished was that certain risks and responsi- lities had not been taken over by the Electric ghting Companies until a day or two since; t now in the streets in question gas would no nger be used. This is a satisfactory announce- ent, seeing that the evenings rapidly lengthen, d the day of much artificial lighting ap- oaches, when gas-burning as an auxiliary to e electric light would become a serious expense City ratepayers. By this time the want of nfidence in the constancy of the electric light s surely disappeared, however wise may have en the caution exhibited in the bygone days of e flickerings and many-coloured flashings of e early, imperfect lamps.

There is some little of interest in the report of uesday's meeting of the commissioners. Well- nkers will take note of the fact that an artesian ell at some artisans' dwellings in the Minories aving been bored to the contract depth of 352ft., ields from 17,000 to 19,000 gallons of water aily—an amount, however, insufficient for the quisite purpose, and consequently the Commis- oners have ordered a further depth of 100ft. in he chalk, at an additional expense of £150. his will be all very well if no other proprietors f deep artesian wells suffer detriment. Facts lating to neighbouring wells of this kind are rious. I always understood, for instance, that he two breweries on either side of the Thames etween London Bridge and Southwark Bridge arclay's and the City of London—on account of he comparatively close proximity of their deep ells, have to brew on alternate days. It is ust possible, if the Minories well is carried down o a considerably lower level than those of these reweries, that the latter supplies may be ffected, all of which points to the desirability of more voluminous, cheaper, and purer supply of ater from a distant source, so that it may be fficient for all ordinary uses, while artesian ells can be left to those who require them for pecial purposes.

Sanitary matters have not been neglected in he City during the recess of the Commissioners. Dr. Sedgwick Saunders, the medical officer, has ot rested on his oars, having visited, with the ntent of sanitary improvement where possible -973 houses in the City, and served 741 notices o cleanse and limewhite interiors in accordance ith regulations pertaining to lodging-houses. This is a pretty good sanitary crusade for a period f only nine weeks, and when we repeat that in he same time 91 tons of meat has been seized as nfit for human food at the various markets and laughterhouses, beside other good measures aken, we realise the benefit of modern sanitary egislation, and understand why everyone does ot nowadays go through the round of maladies -fevers, small-pox, and the like—supposed by he past generation to be inevitable travelling com- anions in life's journey from infancy to old age.

The demolition of houses in Leadenhall-street as, I understand, opened up some more or less picturesque views in and about St. Mary Axe. A whole side of the Church of St. Andrew-under-Shaft has been exposed to view, besides a buttress f the tower, heretofore, apparently, incorporated s structural support to the old buildings de- nolished. It is said that the site is to be mmediately built upon, so those fond of seeing old nooks and crannies of the old City revealed by improvements, both real and imaginary, should not fail to run round to St. Mary Axe. Procrastination in these matters, in an era of steam derricks and generally rapid building, means chances gone. To hear of such-and-such a building being exposed in an unusual manner owing to the pulling down of old tenements, and to put off visiting the site for only a few weeks means disappointment in very many cases, as we find, when we do at last make the pilgrimage, that new walls impede the view, or, at the best, we have to peer through the chinks of a "close-boarded hoarding" in a manner scarcely dignified enough for handmaidens of high architecture who never work for less than 5 per centum—except on convenient occasions.

What a wealth of possible new views of old faces is there in London! Only to think of the old City churches, hemmed in at present on all sides by tall buildings—offices, warehouses, or what-not—brings to one's mind the possibilities of the unknown and undreamed-of picturesque that exists in a large city. In a place like London there is quite a world of beauty of architecture never thought of, and lying undiscovered perhaps for all time. Now and then operations of rebuilding, necessitating pulling down old houses, reveals to the gaze of Mr. Eyes—as distinct from Mr. No-Eyes—not only novel combinations of this building and that, but views and prospects of the features of individual buildings, novel—in their effect—even to their very designer. Nor is it necessary that an ancient building be concerned. Often building operations will display new views of comparatively recent works, as, for example, when the improvements at the Holborn end of Gray's Inn-road revealed to the public gaze a new prospect of St. Alban's Church. The formation of new streets and thoroughfares is a fruitful source of this sort of revelation of the picturesque. Even in such cases, however, those who would discover novel views of old and new works of architecture must promptly repair to the scene of pulling down operations, as, in nine cases out of ten, the new views are but temporary, to last only so long as the newly-formed sites are unbuilt upon, which, in this city is generally a very short interval of time indeed.

Municipal lodging-houses are likely to be an increasing and developing institution, if those already planned and intended to be erected answer their expectations. Without waiting to see the success of the example to be built by the London County Council, the Newcastle Corporation have wisely decided to undertake the construction of a model lodging-house, which, besides being likely to prove, as I sincerely believe, a boon to poor humanity in that Northern town, bears some fruit for the architectural community, in that the plans are to be put out to competition. May the whole affair go through successfully and prove a working success, such as will lead to the erection of other municipal lodging-houses in every large town in the queendom. It is sufficient to pass by the doors of the lowest types of lodging-houses in London to feel the necessity for a development of the municipal lodging-house. To reflect that what we should refuse to enter for so much as five minutes is the only possible abode of thousands of men who, if they sigh for no better means of shelter, it must be because they are deadened to all feeling by long custom and usage, must surely be to sympathise with any movement calculated to make an improvement in this direction. Such improvement I do believe to be waiting the practical realisation of the schemes for model municipal lodging-houses already put forward; and if in very truth improvement does result, the system must rapidly develop, since in so many of our large towns there is the section of population living, or "existing" in the miserable accommodation afforded by private lodging-houses or "doss-houses," as the Salvationists have it, who, let it be frankly said, seem to have done something practical in their spick-and-span-looking "Ark" to help on the present question, as all may see for themselves who will walk along Southwark-street, past the premises aforesaid, and continuing into the wilds of the Boro' district, contrast therewith the nastiness of aspect of the average low lodging-house.

Your very interesting and instructive article on "Contrivance in Planning" will have been read with much profit to the reader. If I could add anything on the subject, it would be to point out two distinct types of plan—(1) where there are restrictions and exigencies; (2) where there is freedom more or less absolute. The former plan is unconsciously developed *from the boundaries inwards*; the latter may often be advantageously developed *from the interior towards the exterior*, piece by piece, as the bee—no mean architect, by the bye—constructs her ranges of wax cells. The trammelled plan will often require much wrestling with, the whole gradually assuming—after much laborious thought—definite shape from an original chaos. The free and unrestricted plan, such as pertains to symmetrical and monumental designs, may be worked out methodically if only the planner will commence with some definite base of operations, and move not from thence unless certain of his aim and of the rightfulness of his intentions. No better or simpler example of the latter class of planning can be instanced than that of a cruciform church, which every reasonable architect would commence by laying down axial lines for nave and transepts.

GOTH.

CHIPS.

The name of Frederick William Fryer, of Surrey-street, Strand, architect and surveyor and newspaper proprietor, appears in the list of receiving orders in bankruptcy in last Friday's *London Gazette*.

Pembroke Chapel, Liverpool, was reopened last week after alteration and renovation carried out from designs by Mr. Auger as honorary architect.

Memorial stones of a new Wesleyan Mission Chapel at Saville-green, York-road, Leeds, were laid on Saturday. Plans have been prepared by Mr. W. Baldwin, architect, Leeds, for a chapel, which will contain one large room, with two class-rooms adjoining. There will be accommodation for 270 scholars, and 200 persons can assemble for public worship. The cost of the land and the erection and furnishing the chapel will be £1,000.

The members of the Glasgow Architectural Association paid a visit on Saturday to Paisley, where they inspected the Abbey, the Coats Memorial Church, and other buildings of interest.

Mr. W. H. Radford, C.E., of Nottingham, has been instructed by the corporation of Durban, Natal, to draw out plans and specifiation for the supply of six miles of steel tram-rail, with all necessary fittings.

Mr. Hamo Thornycroft's statue of the late John Bright was successfully cast in bronze the other day by Moore, of Thames Ditton, and is ready for the unveiling, which takes place at Rochdale on the 24th of October. Mr. Bright is represented in the act of making a speech, the right hand being slightly raised, and the other, which grasps his notes, hanging at the side. The figure measures 9ft. 6in. in height, and will stand upon a granite pedestal not less than 11ft. high. It will be placed in front of the Town Hall.

The directors of the Harrogate Gas Company have appointed as their assistant engineer Mr. Bertie W. Richardson, who for the past five years has acted in the capacity of assistant to their late engineer, Mr. P. H. Wilkinson, Mem. Gas Institute. Mr. Richardson executed the whole of the plans, and is superintending the erection of huge buildings for the storage of gas-coal at the works. The directors last year adopted a scheme of Mr. Richardson's for the development of an estate which the Company have since placed on the market. It is situated near the gasworks, and the scheme embodies the erection of a number of artisans' dwellings.

On Saturday afternoon the president of the Bristol Master Builders' Association (Mr. E. T. Hatherly), Messrs. James, Scull, and Cowlin (members of the association), Mr. Henry J. Spear (secretary), and Mr. Perry (the instructor of the plumbing class) attended the School of the Society of Merchant Venturers for the purpose of adjudicating upon the work of the students during the past session. After carefully examining the specimens of plumbing work, the prizes for practical work executed at the school workshops were awarded to J. W. Holbrook and F. J. Cann. The adjudication of prizes in the carpentry and joinery classes was deferred.

A very large clock was formally started in the parish church of Kendal on the 11th inst. It is the gift of Mrs. Braithwaite, as a memorial to the late Mr. G. F. Braithwaite, of Hawesmead, Kendal, and is fitted with all the latest improvements. The quarters are chimed on four bells as at Westminster, and the hours are struck upon a 25cwt. bell. The escapement is a double three-legged gravity one, and the pendulum is compensated for changes in the weather. All the wheels have machine-cut teeth, so as to be perfectly accurate, and the whole of the parts are arranged so that any part may be removed without interfering with the others. The whole of the work has been carried out by Messrs. John Smith and Sons, Midland Clock Works, Derby.

HOT-WATER ENGINEERING.—XVI.

SUPPLY OF HOT WATER FOR BATHS AND DOMESTIC PURPOSES.

TWIN BOILERS.

IT occasionally happens that a range with two boilers to it is required, these boilers being situated side by side at the back of the fire, and usually being designated twin boilers. With the modern close-fire kitcheners, this is an unusual requirement, and one that cannot be recommended at the best of times; but with the old open ranges, it was the commonest thing imaginable, and fully half of these old ranges that are

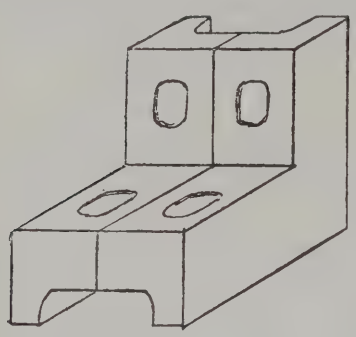


FIG.48

taken out have two wrought-iron boilers, if they have been used in good-sized houses. This brings us to consider a matter that is sometimes difficult to adjust, and which occurs with frequency in large West-end London property.

When a large open range is displaced, and it is found to have two boilers at the back of the fire, it will, in nearly every instance, be found that one boiler, which is devoted to supplying hot water to the kitchen offices is supplied with water from a cistern situated somewhere near on the same floor. The other boiler, which furnishes hot water for all upstairs requirements, by means of a circulating apparatus, is fed from a cistern situated up on the highest floor—probably on the roof. With the new range there will be probably only one boiler, which is fully capable of supplying all taps and doing the work satisfactorily that has hitherto been done by two boilers, and thus far all is well; but there now arises a question needing every consideration, and which may readily be overlooked.

When an open range has two boilers fed by two distinct cold-water cisterns, it will in most cases be found that the lower one, used for servants' offices, is the largest, and the one at the top of the house, for upstairs supply, smaller. Under the new arrangement with one boiler to supply all taps, the lower cistern has to be

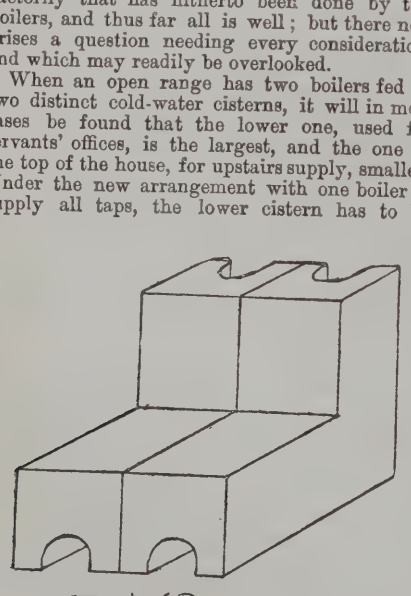


FIG.49

entirely disposed of—it cannot be used, and then the upstairs one will very likely be found of insufficient size for all purposes. This is where the trouble arises, and matters cannot be left in this state.

The remedy is to either increase the size of the cistern upstairs, or, what is better, place an auxiliary one beside it; if this cannot possibly be done, then the new range must have two boilers, worked in the same manner as in the old range. Every possible attempt should be made to avoid the two boilers, if possible, by increasing the water supply at top of house (it can sometimes be arranged for the constant supply service to be connected), for twin boilers have so many disadvantages.

Figs. 48 and 49 show the two forms in which these boilers are made, the difference being in the flues. These boilers are shown boot-shaped, but, of course, the saddle shape can be adopted if desired. The first figure shows what we might describe as an ordinary boot boiler, divided vertically down the middle, thus making it capable of being put to two different purposes, and fed from cisterns at different levels; the division could be made more to the right, or left, as desired, so as to make one boiler better suited for a larger demand for water than the other may have. This is one of the chief troubles of this arrangement, as, there being no means of controlling either boiler separately, it will always be found that one is overdoing its work, and the other more or less a failure. It is impossible to arrange these boilers so that each will exactly meet its own distinct requirements.

The second figure shows two distinct boilers, the counterpart of one another, but having flues of their own, which, by a proper arrangement of dampers, permits one to be urged or checked without noticeable interference with the other. This is the best arrangement, but it necessitates a very wide firebox and an unnecessary consumption of fuel; in fact, little could be done in this way with a fire less than 18in. wide; and even with this the two boilers would not be equal to a single wide one in a 14in. fire, so that a formidable obstacle to using two boilers exists here.

Sometimes the two boilers are required for distinctly different uses—viz., one for water supply and one for steam (for small cooking operations). Under this arrangement the results are most irregular, for we must not have a poor heating boiler for steaming purposes; yet this

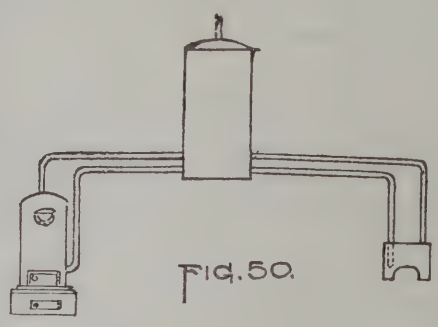


FIG.50.

boiler may only be in use a few hours per day, and the remainder of the day its efficiency goes for nothing. Under any circumstance, twin boilers are but a very limited success, and, added to this, they lead to an unnecessary consumption of fuel. If two boilers must be provided, let one be in the range, and one independent. The first cost will be but very little greater, but the ultimate cost in fuel will be decidedly less. In addition to this, efficiency will be insured, and no complaints will ensue. Complaints of some sort nearly always transpire when twin boilers are fitted up, for servants employed in the kitchen of a large residence have little time, and less patience, to humour a range that does not give good and regular results.

Closely connected with this subject is the practice of connecting two boilers to one apparatus, the boilers being either in close proximity to one another, or separated by being in two different rooms. This practice can be spoken of more favourably than the last, for it has many good features, and none that are actually objectionable. In the first place there is the occasion referred to in an earlier paper, in which it is supposed that the range boiler in a school or some such institution is not of sufficient power at certain times in the day, and is therefore assisted at such times, and generally, by an independent boiler connected to the same apparatus. This is a useful and oftentimes necessary resource, particularly when a large number of baths are required at morning or night, but the demand for hot water only normal during the rest of the day.

If the apparatus is upon the cylinder system and the conditions are favourable, it is best to keep the main flow and returns from each boiler distinct, running them each directly to the cylinder, as Fig. 50. There is not so very much to be said in favour of running distinct primary flows and returns in this way; but the are more inclined to efficiency than any method. If the cylinder was situated at t of the ranges, then the services from one would have to be branched into those other, probably as Fig. 51. With the system, the services would be branched in other, flow to flow, and return to retur the last illustration. There is no par point at which they have to be joine nearest or most convenient junction is effe

When a junction is effected betwee boilers that are situated in different rooms generally with the idea of one boiler aidi

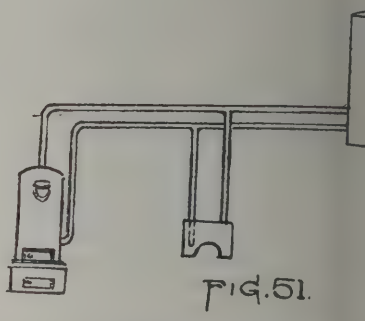


FIG.51.

other; but sometimes it is that two ki exist, having a range and boiler in each. I case the two boilers are put in communi with the one apparatus, so that if one kitch is lighted and not the other, whichever it m the supply of hot water will not fail. It course, a common thing to have a second either in another kitchen or scullery, this acting as an auxiliary to the other, wh usually a larger one. It is a desirable pla a second range is of the utmost convenience the large range is out of repair, or at such that but little cooking is required. At all times the hot water does not fail, as each has its own boiler; and of course, if ranges were in use when cooking for a number, the only effect upon the supp hot water would be to make it more abu than ever. It will be understood that in co ing up two boilers to one apparatus it necessary for the boilers to be upon an exact with each other: they could be on two diff floors, if necessary; but if the apparatus w the cylinder system, both boilers would, of c have to be below the cylinder.

CONNECTING COILS, FOR HEATING PURPOSES, SUPPLY APPARATUS.

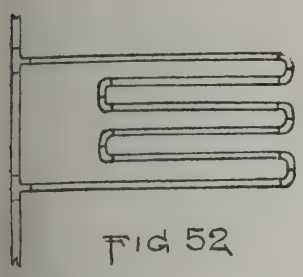
This is a practice frequently carried out, sometimes with excellent results, but a d care must be exercised in speaking favourab it, as ill results can be very easily attained. the first place, there is no doubt whatever the objects sought to be attained in a he apparatus and those of a domestic supply sy are distinctly opposed to one another, and ever way they may be worked together, must bring about some injurious results t other. The object of any heating applian coil is to diffuse, dissipate, or in some impart the heat of the water to the air and rounding objects. This is effected chiefl radiation from the heated surface of the p also in a great measure by the abstraction of by the air in contact, which distributes the by the process of convection. In other w this coil will effectually do what was so stro condemned in the last paper, viz., disperse heat so that it will not issue with the water the taps.

Of course, with an apparatus which has pipes and reservoir exposed, that is, not cov with felt or other materials as spoken of in the paper, we might liken the whole erectio a coil for heating purposes, as heat is diff from all these exposed surfaces from top to bottom of the apparatus. From this it wi seen that where heat is lost by radiation, &c boiler of more than sufficient power for the quantity of hot water used is required, and difference amounts, sometimes, to 50 per cent. arranging, therefore, for a coil to be use must be understood that the boiler must be that would be fully powerful for the o general work; otherwise some ill-effect, mor

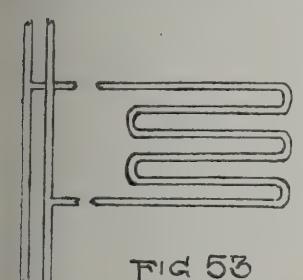
ticeable, according to the size of the coil, experienced. This alludes to coils such ld be used for warming entrance-halls, and would be of fair size. A small coil of a n. pipes, such as is used for warming a upboard or closet, is nearly always admis- without consideration as to the power of ler. These latter heating appliances do rt with much heat after the closet in which re fixed is once warm

heating linen-closets, sometimes the tank l, and although the tank is thus put to a e that seems opposed to the conservation t, there is no particular objection. As just oned, a linen cupboard soon becomes very within, and although this warmth is ob- at the expense of the hot water, it is not wasted. The tank, after once warming its ndings, benefits by the heat that it has d—a very different thing to what is ex- ced when the tank is exposed, and all the adiated is dispersed.

itting up a coil in a linen closet, a few lines same pipe that is used for the rest of the tus is generally sufficient, either set (bent) le with short lengths of pipe and elbows,



. 52. This illustration shows the coil con- l wholly with the flow-pipe—a common ce, and not to be objected to, unless the as some distance from the main service when it would be better to connect it with pipes, as Fig. 53. Both these methods equally well to the larger coils referred to. ubject will be dealt with fully in a later



upon heating by hot water, and the more rn radiators will then be referred to, these es being preferable in every way to the ordi- pipe-coils for residence work.

casionally it is asked whether a short length pe, or a coil, in a greenhouse can be heated the kitchen range boiler, and such an gement can sometimes be met with. In case a considerable cooling influence is ex- nced; but there is another objection of a fatal nature in the fact that a greenhouse cularly wants heat at the cold hours of early ing, and this is when the kitchen fire is y, if ever, alight. A failure must ensue this cause, if it is the plant-life that needs armth. If it is only that the place requires ning during the day, that it may be com- ble to walk in and out of, then the night- can be put up with.

greenhouse is even more a tax upon the r than a coil in a hall or room, as the pipes aused to part with their heat very rapidly. range is 5ft. and has a boot-boiler which is capable for general domestic supply, 20ft. r.) of radiating surface might be permitted greenhouse, or 30ft. in the house. This is l to 20ft. and 30ft. of 4in. hot-water pipe; wherever possible, radiators should be used, nly on account of their appearance, but by n of their holding so little water. If we hed 30ft. of 4in. ordinary pipe to the appa- , it would be equal to another fair-sized voir, and so impose extra work upon the boiler in another way. A fair-sized radiator has from 25 to 30 superficial feet of radiating surface; therefore if two radiators are to be attached, they should be of small size.

ROAD MAINTENANCE.*

By R. H. Dorman, County Surveyor, Armagh, Ireland.

SINCE the commencement of the present century the general condition of the public roads throughout the United Kingdom has undergone vast improvement, and although the laws which regulate road maintenance and county work in Ireland differ from those in force in England and Scotland, and to some extent retard progress, yet I think I am correct in stating that the general condition of the country roads in Ireland is not very much behind similar roads in the sister island. Broken stone and gravel are the materials exclusively used for repairing country roads in Ireland; in some of the larger towns squared setts and cobble paving are a good deal used; but wood, asphalte, and similar materials have only been tried on a very limited scale. Since cobble pavements are universally condemned, I propose dealing in this paper only with macadam and stone-pitching in connection with road maintenance. The weather is an important factor in connection with road maintenance. We have too much sun in summer and too little in winter. In continuous dry weather the wind as a dust carrier creates a nuisance, while during and after rain it is beneficial. During long continued dry weather occurring at any period of the year, a high wind is most injurious to the roads; I have known roads break up just as badly in March as during any period in the summer, owing to the wind blowing all the fine particles off the surface and from between the broken stone. The effects of rain and frost are too well known to need discussion. I need only remark that whereas occasional rain is beneficial to a road, frost appears to be at all times injurious, and further that during alternations of rain and frost it is almost impossible to keep a badly bottomed road in order. No matter whether a road lies high or low, if it is overhung by trees it will be found to be constantly damp; this is most noticeable in summer, when the trees are covered with foliage. A neatly cut hedge, well set back from the travelling way of a road, is about the best form of fence that can be devised; but when overgrown they become not only an obstruction to the traffic, but they shut out the sun and wind from the road surface. Although provision is made by Act of Parliament whereby owners who refuse to lop their trees or cut their hedges, on being noticed can be compelled to do so, yet summoning such persons to Petty Sessions is one of those unpleasant tasks which a county surveyor is anxious if possible to avoid. The water level should be kept at least 2ft. below the road level; this is, however, not always possible. I have several roads under my charge which are constantly covered with water during flood time, and several roads in the neighbourhood of Lough Neagh are so covered for prolonged periods during the winter months. Keeping the outlets and side channels clear and the surface free from water is of nearly as much importance as the drainage of the subsoil. If, owing to inequalities on the surface, water is allowed to lie in the hollow parts, it gradually soaks into the body of the road, softening the binding material, and the stones having lost their natural cohesion, work on one another, and wear and tear goes on nearly as rapidly in the body of the road as on the surface; this action is, of course, greatest on a weak or badly bottomed road. To show the excessive wear and tear which goes on on a badly bottomed road as compared with a hard road, I may mention two short lengths of road under my charge. The first length of road is very badly bottomed, it is also too flat in section, and may be considered as a thin coating of hard whinstone resting on clay. The second length of road has a better bottoming, the top coating is considerably thicker and it is rounder in section. The traffic on each length amounts to about 1,200 cars per day, but the amount of material required to repair the first length of road is at the rate of 1,200 tons to the mile, while on the second length it only amounts to 800 tons to the mile per annum. Except in the neighbourhood of Belfast, steam rollers have not, I believe, yet been introduced on country roads in Ireland, and the road metal has to be consolidated by the traffic; the practice of picking up the surface before spreading on new material is also little attempted. For my own part, I do not consider it advisable to hack up a road, except when repairs are absolutely necessary in the spring and summer months, and then only when laying material on a hard road. If the bulk of the stone necessary for the repair of a road be laid on in damp weather during the months of October and November, it will take but a short time to work in; the stone should be spread off in sheets on alternate sides of the road, on hard roads the sheets should be kept thicker than on soft roads, and on hills the sheets should extend from the channels to rather beyond the centre of the road, the top corner next channel being cut off to allow the surface water an easy flow to channel; petty repairs should be effected by lightly picking in the wheel tracks as they form, and spreading off small patches as required. I do not consider it necessary to add any binding material when roads are repaired in the above manner; but I direct the surfacemen to sweep any mud or dust which may accumulate round a sheet on to it; this facilitates the binding, and helps to keep the sheet together. In summer, however, I sometimes find it desirable to spread off some blinding on roads repaired with whinstone and similar material to prevent the stones from rolling. Well drained, but badly bottomed roads, break up far sooner than any other class. For repairing main roads and streets of towns in Ireland I consider it high time to introduce a steam roller, and I do not despair of seeing the day when rollers will be considered a necessity for all road repairs. I find an Aveling and Porter 10-ton roller can consolidate from 800 to 1,000 square yards of roadway in a day of 10 hours, much depending on the quality and quantity of the binding material used. I estimate four rollers would be required in the County Armagh to deal with the main roads, at a cost of about £2,000 per annum. I should be glad to hear if any members of the association have had experience of rolling-in very soft material, such as white limestone. I fancy a six-ton roller would be as much as such material could bear. I believe the best method is to employ a foreman with a gang of men under him to attend to the roads in separate districts. In Ireland, however, it is the custom to employ one or more men to attend to each main road contract; it is not usual to employ regular surface-men for the by-roads. If hardworking and intelligent men could always be obtained for this purpose, there would be little objection to it; but unless carefully supervised, the men are apt to become careless, and frequently absent themselves from their work. In the County Armagh the amount of surface-work required in winter varies from one man to one-third of a mile to one man to five miles of main road. If I could induce the contractors to purchase horse-brooms and slop-carts, the manual labour would be much reduced, but so far only hand-scrapers and hand-scraping machines are in use to remove mud; these are also used to remove dust in summer on the limestone roads. More than one-half the roads in Ireland are repaired with limestone or limestone gravel, and for light traffic the blue limestone or limestone gravel makes an excellent road. The white or grey limestone is very inferior, and wears rapidly. In the County Armagh the materials available vary very much in quality; over a large portion of the Baronies of O'Neilland West, Armagh, and Turany, the white limestone only is available, and the amount of stone necessary to maintain the roads, and the amount of mud created, and consequent surface-work, is enormous. In the east and south of the county, whinstone, slate stones, granite, and elvanite are available; the whinstone makes excellent metal, the slate stones vary in quality, the granite is generally coarse grained and unsuitable for heavy traffic, the elvanite is superior to granite. Great difficulty has been experienced during recent years in co. Armagh in obtaining hand-broken stone in sufficient quantity. The amount of stone required annually for road repairs amounts to about 80,000c.yds., of which a small proportion is machine-broken. The strength of the stone undoubtedly suffers in passing through a machine, and there is a considerable amount of fine residuum for which there is little demand; notwithstanding this, and since

* A paper read before the Incorporated Association of Municipal and County Engineers at their meeting in Dublin, Sept. 25th and 26th, 1891.

they are still in their infancy, and many improvements may be expected in them in the future, I anticipate their coming more largely into use in this country. Two of the chief objections to them are their first cost and great weight, and contractors hesitate to invest their money in such unwieldy monsters. The class of machine required in Ireland is:—(1) A machine which can be easily moved from place to place, like a thrashing-machine; (2) a machine which can adapt itself to all qualities of stone; (3) a machine which will produce cubical stones without reducing their strength, and which produces little waste; (4) a machine which can be put in motion by steam, hydraulic power, or animal power; if turf could be used for fuel, it would be an additional advantage; (5) a machine strong but simple in construction. As I am dealing with machinery, I should like to make a few remarks on steam tramways and traction engines on public roads. Under the Tramways (Ireland) Act, 1881, tramways or light railways may be constructed on the public roads, provided the speed be limited to ten miles an hour and a minimum width of 18ft. be left between the outer tram-rail and the opposite fence or footpath; in the County Armagh a short length of light railway has been constructed on the side of the public road, leaving only a width of 14 or 15ft. between the ends of the sleepers and footpath; the consequence is that the road has been rendered most dangerous for animal traffic. Traction engines are also a source of danger, but if proper precautions be taken, the danger may be minimised. My experience of them is that they do considerable damage on soft roads, but very little on good hard roads. The chief danger I apprehend from them is in passing over pipes and bridges; there is frequently a more or less sharp rise over a bridge, and when the full weight of the engine is over one of the haunches it is very apt to injure the arch; the vibration of the engine also tends to shake the structure. The following are some of the methods I adopt for re-forming roads in bad order and out of shape:—(1) When there is a good thickness of metal in the road, but road hollow in centre and too high at sides. During the summer months the sides are picked off and the material screened, the fine stuff is kept for the footpath, and the coarse stuff applied to centre of road. (2) When the depth of metal is very thin. Thick sheeting applied annually will of course, after a time, bring the road to a proper section; but if the traffic is considerable, and road badly bottomed, it should be pulled to pieces, the formation surface paved with quarried stone 6in. to 8in. deep, set on edge, and coated over to a depth of 6in. with sound stone, blinded with clean gravel or sand. The leading road from Armagh to Monaghan is a good example of a road of this class; it is a low-lying road, badly drained and badly bottomed, and consists for the greater part of its length of about 3in. to 4in. in thickness of mud and broken stone resting on clay, while both sides are adorned with large banks of mud. A presentment was approved at Sessions for spending £1,000 on remaking 200 perches of the road, but it was thrown out before the Grand Jury. As regards the expenditure in this case, after deducting cost of footpath, stone depots, removal of mud banks, &c., there would be left a sum equivalent to about 1s. 6d. a yard for excavation, bottoming, &c., barely sufficient for the purpose. Owing to the opposition offered to the work, on the ground of expense, I have now given up the idea of bottoming the road, and propose applying an additional quantity of broken stone to it every year, but it will take several years before it can be got even into fair condition by this method. (3) When the travelling way is too narrow and road too high in centre. During the summer months the top of the road should be picked off, and material taken off applied to the sides. If the sides are very low, they should first be made up with pitching or clay to the required level; in the County Armagh, very few of the roads are properly bottomed, and I find it sufficient to side the roads with good clay rammed in layers before applying the top metal. By this method I have converted roads which were always in bad order into a fair state of repair.

(*To be continued.*)

A new bank is being roofed-in at Truro, having been erected for the Devon and Cornwall Banking Co. It occupies the angle of Boscawen and Lemon streets, and is being built from designs by Mr. Silvanus Trevail, M.S.A., of that city.

Building Intelligence.

Bradford.—A new goods station is about to be erected for the Midland Railway Company. The contract has been let to Mr. Coates Murgatroyd, contractor, Idle. It is intended to erect a building 384ft. by 170ft., of four floors, including a basement, covering no less than an acre and three-quarters. The floors are calculated for a load of 3cwt. per square foot, or in the aggregate for 40,000 tons of goods. The plan is a parallelogram. The elevation towards Forster-square will be masked by a detached block of offices, probably three stories in height. The ground floor of the building, with the exception of the side adjoining the new passenger station, will be an open colonnade, the upper floors being carried on a series of massive iron columns. Between the bonding warehouse and the new warehouse will be a cart road, 32ft. in width, covered with a glass roof, giving access for drays to the first loading platform, which will be 18ft. in width. Beyond this will be three sidings for goods waggons, and then another platform of 18ft. width. Access to this will be obtained by a second dray road, 24ft. wide. Each platform will have five hydraulic cranes, and hydraulic hoists will communicate with the basement below and the two upper floors. The basement will be 14ft. in height, the ground floor 26ft., and the two upper floors 16ft. each. The roof is of five spans. The ironwork has been let as a sub-contract to Messrs. Eastwood and Zwingler, of Derby. The reconstruction of the lower portion of School-street Bridge will be undertaken by the engineering department of the company, the contract for the ironwork for the bridge having been let to Messrs. Butler, of Stanningley. Mr. Murgatroyd's contract, which does not include the block of offices, alone amounts to over £100,000. The plans for the new station, like those of the passenger station and hotel adjoining, have been prepared by Mr. C. Trubshaw, the Midland Railway Company's architect, and he estimates that the works will be completed by the spring of 1893.

Clones.—The foundation-stone of the new (R.C.) Church of the Sacred Heart at Clones, near Dundalk, was laid and blessed on Sunday week. The internal dimensions are — total length 112ft., transepts 76ft. across, and nave and aisles 49ft. in clear width. The internal arrangement is that of nave, aisles, and transepts, with chancel equal in width to the nave, two side chapels, two sacristies, tower, with intended spire at the south-west of aisle, and entrance-porch to north aisle. Polished red granite monoliths will form the pillars between nave, aisles, and transepts, having cut stone plinths and moulded caps, whence spring a series of moulded arches carrying the clerestory walls, which are pierced with two-light windows; all the quoins and dressings being of a bright sandstone found in the neighbourhood, closely chiselled, forming a contrast to the blue shade stone in the wall-facings. The roofs will be open-timbered and panelled in pitch-pine, with cornices and mouldings. The contractor is Mr. Patrick Nolan, Monaghan; and the architect Mr. Wm. Hague, 50, Dawson-street, Dublin.

Crosby.—A Wesleyan chapel and school premises in Mersey-road, Crosby, were opened last week. The chapel is centrally situated between the Assembly Rooms and the railway. The architect is Mr. James Francis Doyle, of Liverpool; the clerk of the works, Mr. Samuel Gunning; and the contractor Mr. S. Webster, of Bootle; the amount of the contract being £8352 3s. 10d. The chapel is cruciform on plan, with wide nave, 70ft. by 41ft.; transepts, 26ft. by 14ft. 6in.; octagon-ended chancel, 28ft. 6in. by 21ft. 6in., with organ chamber 22ft. by 16ft. The tower and spire, 110ft. high, are placed at the north-east angle of the church. At the south-west angle of the church are classrooms, vestry, and corridor connecting the church with the lecture-room, which is 53ft. by 30ft. The style of architecture adopted is the Transitional period between Decorated and Perpendicular. The materials used externally are Yorkshire stone shoddies and Storeton stone dressings. The roof principals are constructed with hammer beams, and the spaces filled with tracery. The carving is by Mr. J. Rogerson, and the stained glass and enriched grisaille work by Mr. J. Aldam Heaton, of London. The church will accommodate about 650 people, and the lecture room 300.

Llandudno. — The foundation ston Roman Catholic church was laid last w Lloyd-street, Llandudno. The church, w to be built from the designs of Mr. J Kirby, F.R.I.B.A., Liverpool, by Mr. Williams, Knighton, Radnorshire, at a £5,000, will be Gothic in style, and bui Yorkshire stone facings and dressings of P stone. It will include two aisles, nave, ba two side chapels, and a sanctuary, with P stone columns running along each side roof will be of pitch-pine, as will the flo latter being laid with encaustic tiles in th and aisles. There will be a traceried win the east end of the church. It is also in to erect a presbytery at the end of the ch soon as the funds permit. The inside m ments of the church are 83ft. by 42ft.; sanctuary, 26ft. by 11ft. 3in.; of th chapels, 11ft. 3in. by 10ft.; and of the bap 12ft. by 10ft. The main entrance will Deganwy-street, and a tower will be add future period.

Linthorpe, Middlesbrough. — The bishop of York laid on Tuesday the foun stone of the new Church of St. Barnabas, course of erection from plans by Mr. Fowler, F.S.A., of Durham. Mr. F designs show a large church in a plain style, of pressed bricks with stone facing with stone arcades and chancel arch. building will consist of a wide nave with t aisles opening into it by arcades of five with chancel, two vestries, organ-chamb The entire edifice will not be erected at on when completed, it will afford accommodat 750 worshippers. The woodwork will b cuted in pitch-pine, with the exception chancel, which will be fitted with oak. tracts have already been entered into for th struction of the greater part of the na aisles. The entire estimated cost is £6,00 contractors are Messrs. Bastiman Broth Linthorpe, and the clerk of the works is M Sturdy, of Middlesbrough.

Torquay.—After extensive improvemen renovations, St. Mark's Church, Torqua reopened on Wednesday week. The wo completed includes the placing of a new st glass window in the east end of the ch memorial gift, the subject being "Ou in Glory," and the artists Messrs. Ha and Co. A new alabaster reredos is th of Mr. Harry Hems, as also are the oak screens in the chancel, the design bei the late Mr. J. D. Sedding. Three new s dark grey Devonshire marble have been tuted for those steps previously used at th end of the church. The altar, bishop's t and sedilia were designed by Messrs. F Tait, and Harvey, of Exeter, and execu Mr. Hems. The windows at the sides altar have been raised and decorated, window on the south side has been enlar that it may be filled with light-toned glas memorial, the stone work in connectio this having been executed by Mr. Wy Ellacombe. Messrs. Fulford, Tait, and H have designed the new carved oak alta reredos for the chapel, and Mr. Hems has out the work. It is intended to place a oak screen, partly glazed, at the west end church. The improvements have been out at a cost of £800. Mr. W. B. Co acted as clerk of the works.

Wellingborough.—The Corn Excha being entirely remodelled internally, an vided with additional accommodation f convenience of travelling theatrical com The Corn Exchange is now capable of s 800 persons, its present size, including the being 113ft. by 40ft., and 28ft. in height balcony at the south end. Two dressing constructed beneath a permanent sloping (39ft. by 25ft.), measure 20ft. by 13ft. whole of the decorative work which has a the building during the past quarter of a c has been cleaned off, the skylights hav taken out, and the place entirely re-roofed new decorations, consisting throughout o colours, show up the architectural lines to perfection. Two groups of five Wenham have taken the place of the antiquate chandeliers, at a cost of about £150. N stage, doorways have been pierced on eith of the hall, affording entrance to and exi the first and second class reserved seats. S entrances devised for performers lead dow

dressing-rooms beneath the stage, and to
v stage, which increases the length of the
g by 25ft., and this is fitted up with foot-
top-lights, and trap-doors. Speaking-
connect the stage with the dressing rooms,
are supplied with separate lavatories; the
apparatus has been reconstructed; hot-
pipes extend around the stage; water has
aid on, and the whole of the sanitary
nces have been revised. The architects
ssrs. Talbot Brown and Fisher, and Mr.
Henson has carried out the structural
ions, general repairs, and decorations. The
ost of the work is £1,500.

Engineering Notes.

TCHESTER CANAL.—The full depth of 26ft.
er will be attained in the second section of
Manchester Ship Canal, extending from
here Port to the mouth of the river Weaver,
(Friday). The work of filling the six
of cutting has proceeded without a hitch,
the personal supervision of Mr. Clarke,
engineer, Mr. Fitzgibbon, resident en-
, and Mr. Jones, the agent. The autho-
have fixed upon Tuesday next, the 29th
as the date for the formal opening of
h traffic on both Nos. 1 and 2 sections.
section, extending from the river Weaver,
thwich, to beyond Runcorn, will not be
l until some time next year. It is in the
backward state of all sections of the canal.
ale on Monday did some slight damage to
nbankments of No. 1 Section, but the work
toration has been quickly effected by Mr.
ty, the engineer in charge.

CHIPS.

parish church of Bow, E., was reopened for
worship by the Bishop of Bedford, on
esday, after internal restoration from plans
Arthur W. Blomfield, A.R.A. The old-
ned high-backed pews have been replaced by
seats, and the nave has been divided by a
l passage. The floor has been paved with
n blocks, except in the passages and chancel,
have been laid with encaustic tiles, a layer
crete being spread over the entire internal
es. A new organ, pulpit, and lectern have
resented by various donors, and the interior
building redecorated.

Plunket, First Commissioner of Works, has
nted Mr. Henry J. Hapgood, of Her Majesty's
of Works, to be his private secretary.

execution of the monument to be erected to
y at Viareggio, on the spot where the poet's
ns were burnt in presence of Lord Byron, will
rusted by the memorial committee to the
or Lucchesi.

seventeenth annual congress of the Sanitary
ation of Scotland was opened in Edinburgh
dnesday, under the presidency of Dr. Far-
son, M.P., who, in opening the proceedings,
red an address on a model hygiene state,
ating the institution of a Minister of Health.
papers followed. An exhibition of sanitary
nces was held at Heriot Watt's College.

y Vernon has intimated that she will pre-
a reredos of Derbyshire alabaster to St.
e's Church, Poynton. Designs have been
by Mr. Alfred Darbyshire, F.R.I.B.A., of
hester, and the work is to be commenced next
It is also contemplated to spend £300 on the
ifying of the church.

death is announced at the age of 64 of Mr.
ge Martin Hughes, of Sunninghill, near
sor, formerly a solicitor at Maidstone, and a
known writer on antiquarian and historical
cts connected with Berkshire and Hants. At
me of his death he was engaged upon an in-
gation of the Romano-British topography of
uth of England.

nission church, to accommodate 300 persons, is
to be built at Cadishead, near Warrington.
l be of red bricks, and the cost, exclusive of
gs, will amount to £650. Mr. J. Lowe, Man-
er, is the architect, and Mr. F. Brew, Cadis-
the contractor.

e guardians of the Church Stretton Union
adopted plans by Mr. A. B. Deakin, of Castle-
, Shrewsbury, for an infirmary to be built at
ear of their workhouse.

e Navan rural sanitary authority have adopted
prepared by Mr. A. Scott, of Ludlow-street,
n, for labourers' cottages to be erected in seven
lands in the district.

TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, 332, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

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Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page advertisements and alterations in serial advertisements must reach the office by Tuesday Morning to secure insertion.

NOTICE.

Bound volumes should be ordered early (price Twelve Shillings each), as only a limited number are done up. A few bound volumes of Vols. XL., XLI., XLVI., XLIX., L., LI., LIII., LIV., LVIII., LIX., and LX. may still be had, price Twelve Shillings; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

RECEIVED.—J. W. A.—W. P. and Co.—J. W. V.—A. W. Co.—J. S.—W. B. S. and Co.—E. K.—G. B. J.—W. H. S. and Son, B.—M. and Co.—H. B. B. Co.—A. N. B.—G. R. and Co.—H. G.—S. and Co.

Correspondence.

UNIVERSITY COLLEGE CLASSES.

To the Editor of the BUILDING NEWS.

SIR,—I shall be glad if you will permit me to draw the attention of your readers to the announcement, which they will find in your advertising columns, of new classes which it is proposed to open with a view to improving and extending the instruction in architecture and in building construction in this college.

The liberality of the Carpenters' Company has provided funds which are to be appropriated to establishing an afternoon class for architectural and structural drawing, and an evening class (also chiefly a drawing-class) for instruction in building construction. The fees of both are to be very moderate, and each is to meet twice a week. A very competent demonstrator has undertaken the conduct of these classes under my personal supervision, with the assistance of Mr. Elsey Smith.

I hope that some architects who take pupils will arrange to send them to the afternoon class. One object proposed is to assist students in preparing the drawings required, as "testimonies of study" for the Institute Examination, and otherwise to prepare them for examination. The work as far as practicable will, however, take up the subjects dealt with in my courses of lectures in architecture and construction.

It has been arranged that students able to devote a session to the preparation desirable before entering the architectural profession can attend the classes most suitable for this purpose as a series, and can obtain a "composition ticket" at a reduced fee, admitting to the whole of them.—I am, &c.,

T. ROGER SMITH (Professor).

University College, London, Sept. 22.

TO THE PRESIDENT AND COMMITTEE OF THE ARCHITECTURAL ASSOCIATION.

SIR,—It has come to my knowledge that in one at least of the subjects of the A.A. Education Scheme a gentleman has been appointed instructor who was not one of the applicants, myself and any others who applied, in accordance with the instructions issued, being passed over without being even interviewed or informed as to your decision. I have no objection to make to the gentleman appointed, he being a personal friend of mine and a capable instructor; but I do protest against the manner of his appointment as an act of injustice to myself and all others who applied in the regular way, and should be glad of an explanation.—I am, &c.,

G. A. T. MIDDLETON.

42, Bolingbroke-grove, Wandsworth Common.
Sept. 22.

BOARD SCHOOLS AT EXMOUTH.

SIR,—A week or two since you noticed the erection of board schools for 300 children at Exmouth, the clerk of the board being given as the architect. It is possible that I can give the explanation of this.

Some years since there was a competition for a school of about the same size, and the clerk of the board, who had some knowledge of building, acted as clerk of works, and, of course, had all the drawings and details in his possession. Now is it not possible, nay, probable, that it occurred to this economical board to induce their clerk to carry out another school for a nominal sum, and so save commission?—I am, &c.,

OBSERVER.

Alfred Burgess, 21, carpenter, of Alfred-street, Barnsbury, was charged at the North London police court on Monday with stealing tools belonging to several fellow workmen at the Blenheim-road Joinery works, Holloway. For the past month workmen had missed planes and gauges, and 17 pawntickets relating to the missing tools were found on prisoner when arrested. He was sentenced to six weeks' imprisonment with hard labour.

At the half-yearly meeting of the North Cornwall Railway Company, the engineers, Messrs. Galbraith and Church, reported that as to the second section, that from Launceston to Delabole, the contractors were in possession of the land, and the fencing was completed for a distance of ten miles from Launceston. The first eight miles to Splatt would be opened early next year, and of this portion the excavation was half done in the 25 cuttings, and 14 of the 28 bridges were built, and some more were in progress.

The new harbour works at the fishing village of Auchmithie, near Arbroath, which have been in construction during the last eighteen months, are now about completed. The old harbour was merely a rocky inlet on the shore. A considerable excavation was made for the new work, and the basin is inclosed by a pier. The works include a cart road from the village down to the beach. The plans were prepared by Mr. Baron, C.E., Aberdeen, and the contractor is Mr. John Malcolm, Thurso. The works have cost upwards of £4,000.

A new pulpit, erected in All Saints' Church, Clifton, Bristol, was inaugurated on Sunday. It has a base of dark griotte marble, and the columns are of Emperor's red Belgian marble. The body of the pulpit is alabaster from Derbyshire. The three panels will be filled with medallions, carved in alabaster, of scenes in our Lord's life. The pulpit was designed by Mr. J. L. Pearson, R.A., and executed by Mr. Nathaniel Hitch, who also carved the reredos of Truro Cathedral, and is now engaged on the reredos of Westminster Abbey. The cost of the pulpit is £300.

The principle of the sliding press at the British Museum is peculiar to the Museum. Its great points, Dr. Garnett says, are that it allows expansion within the edifice itself without additional building, and it enables this expansion to be effected gradually out of the income of the library without appealing for the large sums which would be required by extensive structural additions. The cost of a press is about £13, and each press holds about 400 volumes. It is practically an additional bookcase hung in the air from beams projecting from the front of the bookcase it is desired to enlarge, provided with handles for running it backwards and forwards, working by rollers running on metal ribs projecting from the beams.

Intercommunication.

QUESTIONS.

[10629.]—**South Kensington Exams.**—Would be glad to know the best textbooks to use in preparation for the South Kensington exams. in elementary architecture and 3rd grade perspective?—H. B.

[10630.]—**Christian Symbolism.**—I should be glad if any fellow-reader would tell me of a good handbook or manual on Christian symbolism, and also of a similar work on heathen mythology?—GAMBIER.

[10631.]—**Plastered Church Walls.**—Will any fellow-reader kindly inform me what is the term for, and method of, treating the walls of churches when the plaster on same presents a gritty surface? It is not "finely trowelled," I believe.—GAMBIER.

REPLIES.

[10626.]—**Sewage Disposal.**—Waring's "Sanitary Draining" gives details of arrangement for disposal of liquid wastes of country houses by the process of subsurface irrigation. By its adoption cesspools may be discarded.—DAVID BURNS.

CHIPS.

A new bank is being built at Wellingborough, for the Leicestershire Banking Company, from designs by their architects, Messrs. Goddard, Paget, and Goddard, of Leicester. The building is Renaissance in style, and is faced with Portland stone and red bricks. Mr. George Henson, of Wellingborough, is the contractor.

The rural sanitary authority of Downpatrick have adopted a scheme and plans prepared by Messrs. L. L. Macassey and H. N. Reid for a water-supply for Downpatrick. The reservoir is at Tanaghhame, and the storage reservoir at Sampson's Stone. The estimated cost is £10,500.

A third gasholder was inaugurated at the Pleck Gasworks, Walsall, by the mayor of that borough on Friday. The holder cost £8,200, and holds 600,000c.ft. of gas. The plans were prepared, and the work was superintended, by Mr. Tindall, gas manager, and the contractors were Messrs. Bentley, of Leicester, for the tank, and Mr. Jesse Tildesley, of Darlaston, for the holder.

A new board-school for 120 children was opened on Friday at Clarkston, N.B. Mr. Geo. Arthur was the architect.

An International Congress for the Protection of Workmen against Accidents was opened on Monday at Berne. The object of the Congress is to obtain uniform legislation, and to establish a Labour Bureau in the chief European countries.

The general purposes committee of the Cardiff corporation have decided to invite the Queen to open the new Cardiff waterworks next year.

The Bishop of Peterborough laid the foundation-stone on Monday of a new parish church in Kingsley Park, a rapidly growing suburb of Northampton. The church, which is the gift of Mr. Pickering Phipps, is to be Gothic in style. With the site, also given by Mr. Phipps, it will cost about £20,000.

Kew Bridge will, if the Middlesex County Council can come to terms with the Surrey County Council, shortly be demolished in order to give place to a structure more suited to the increasing traffic. The cost will probably be between £100,000 and £150,000, to be divided equally between the two county councils, if terms can be agreed upon. Surrey recognises the need of a more modern structure, but at present is not willing to bear any of the cost. Mr. F. H. Pownall, the Middlesex council's surveyor, together with Mr. C. H. Howell, the surveyor to the Surrey Council, agree that the requirements of the traffic can only be met by the construction of a new bridge, which should be 44ft. in width, allowing two footpaths 8ft. wide to a road of 28ft.

A memorial brass in honour of the late Lord Napier of Magdala, Constable of the Tower of London, was on Saturday affixed to the wall near the Constable's seat in the Church of St. Peter ad Vincula. It was executed by Mr. Matthews, of Castle-street, Oxford-street.

Noseley Hall, near Leicester, the seat of Sir Arthur Hazlerigg, Bart., is undergoing extensive alterations and improvements from the designs of Mr. J. Macvicar Anderson, P.R.I.B.A. The builders are Messrs. Treasure and Son, of Shrewsbury and London.

On Monday the directors of the Bristol and West of England Bank opened their Clifton and Redland branch bank, on the site of what was formerly known as Queen's Villa, Queen's-road. The design of the new building is Classic in character, and the premises comprise a lofty banking-room, manager's house, strong-room, offices. The buildings were erected by Messrs. R. Wilkins and Son, and the fittings were manufactured by Messrs. Howell, of Bristol. Mr. Henry Williams, of Clare-street, Bristol, was the architect.

LEGAL INTELLIGENCE.

SERIOUS CHARGE AGAINST A BANKRUPT BUILDER.—At the Newmarket Police-court last week, Francis Johnson (38), builder, of Fordham, was charged that he being a bankrupt on the 18th July, 1890, at Fordham, unlawfully did not fully discover to the trustee administering his estate all his personal estate—to wit, a debt of £28 10s. due to him, and also three ponies, with intent to defraud his creditors; at the same time and place did not lawfully deliver up to the said trustee certain stock-in-trade then in his custody at Fordham and elsewhere; after the presentation of his bankruptcy petition did, with intent to defraud his creditors, conceal part of his property, to wit, the debt and ponies above named, and unlawfully did remove a certain part of his property, to wit, a bay filly; unlawfully, with intent to defraud his creditors, did omit in the statement relating to his affairs the said debt of £28 10s. and the stock-in-trade and goods above mentioned; unlawfully, with intent to conceal the state of affairs, did mutilate and falsify a ledger relating to his property, or was privy to the same being done; and did make, or was privy to the making, of a false entry in a certain ledger and cash account relating to his property and affairs.—James Johnson (48), builder, Soham, his brother, was also charged with aiding and abetting Francis Johnson in the commission of the offences named.—Mr. Bendall appeared to prosecute on behalf of the Treasury, and Dr. Cooper defended. Evidence having been given in support of the charge, the case was adjourned for a fortnight, defendants being bound over in their own recognisances.

FAILURE OF AN ARCHITECT AND SURVEYOR.—Upon the application of Mr. Joseph Solomon, a receiving order has been made against Wm. H. Turner, architect and surveyor, of 58, Finsbury-pavement, residing at Henhams, Stisted, near Braintree, Essex. There was no appearance for the debtor, nor did the liabilities transpire.

WHAT IS "INTIMIDATION" UNDER THE TRADE UNION ACT?—PETO BROTHERS V. APPERLEY.—The plaintiffs in this case have the contract for the erection of the Cane-hill Asylum, near Croydon, which they are under a heavy penalty to complete by a certain time, and the defendant is now acting as secretary *pro tem.* of the London United Trade Committee of Carpenters and Joiners. The defendant has issued a large printed bill, signed by himself, on which appeared in prominent letters the words, "Wanted, carpenters and joiners to keep away from Cane-hill Asylum," and this bill being posted in the neighbourhood, at the entrance of the works, the plaintiffs asked for an injunction to restrain the act. Mr. Eustace Smith appeared for the plaintiffs, and stated that it was calculated to induce the men to leave the plaintiffs' service, and that had been held to be illegal. There was no strike or lock-out of carpenters and joiners upon these works, and this bill was not addressed to men of a trade-union, which would be legal, but to all carpenters and joiners, and this was beyond legal rights. Mr. Justice Jeune said he thought the law now was that it was perfectly legal for any number of persons to combine to induce others by every legal means in their power—not physical force—not to work for particular persons. The Trade Union Act allowed combination in trade disputes, and it provided that no intimidation must be resorted to. It had been held by the Courts that intimidation meant physical intimidation; therefore it was now legal for people to combine for the purpose of settling trade disputes. Calling men out was not conspiracy.—Mr. Eustace Smith said it had been decided that it was criminal to use words which intimidated, but did not amount to personal violence.—Mr. Justice Jeune said perhaps the best course would be to give the defendant notice of motion for next Wednesday. He granted an interim injunction to restrain the issuing of placards with the words complained of, or similar words, in the mean time.

The Kirk Hammerton Schools, York, are being warmed and ventilated by means of Shorland's patent Manchester stoves, the same being supplied by Mr. E. H. Shorland, of Manchester.

At the City Coroner's Court on Saturday, Mr. A. C. Langham held an inquest on Edward Parman, 24, a bricklayer's labourer, of Albert-street, Homerton. While at work on a scaffolding on premises in Hutchinson's-avenue, Aldgate, on Wednesday week, he fell from a scaffold 50ft. from the ground, sustaining fatal injuries. A labourer named Bates stated that one of the pieces of wood on which the scaffold was resting appeared to give way slightly under deceased. Mr. E. Bell, of Aldgate-avenue, the deceased's employer, deposed that there were supports under the scaffold. Henry Arthur Singleton, of Homerton-row, alleged that the scaffold was not properly constructed, pieces of deal quartering being used instead of scaffold poles. There were also no supports when he first saw it, but the next day the scaffold had been altered. The jury returned a verdict of "Accidental death."

STATUES, MEMORIALS, &c.

CANTERBURY CATHEDRAL.—The memorial t late Dr. Parry, Suffragan Bishop of Dover, i nave of this cathedral, is now fast approac completion. It has been executed in marbl Mr. James Forsyth, is between 7ft. and 8ft. and is erected against the wall in the north ai the nave, midway between the memorials of A bishop Sumner and Dean Lyall. The design is of a cenotaph or altar tomb, forming the ped on which an effigy of the late Bishop rests. recumbent figure is executed in white marble, size, and draped in the modern robes of a Bish the Anglican Church. The cenotaph is desi after the manner of the 13th century, and is cuted in alabaster and richly coloured marbl panels of which are all occupied with sculp subjects and statuettes in high relief. The l or central panel contains a seated figure o Lord, holding the Scriptures in his left hand with the right in the attitude of benediction. figure is surrounded by emblems of the Evange The two smaller panels, right and left of the ce contain representations of local saints who mostly Archbishops of Canterbury, viz., SS. phage, Augustine, Martin, and Anselm. The at the head represents the late Bishop in the a confirmation, while that at the foot shows reading from the old chained Bible in the aisle of the choir to a group of people. Ther niches at the four angles of the cenotaph conta statuettes of angels. The memorial will be unv by the Archbishop next month.

Mr. William Rowell, of the firm of Messr W. Rowell and Son, architects and surveyor Newton Abbot, Devon, has been selected among a large number of candidates for the pointment of surveyor of ecclesiastical dilapida in the diocese of Exeter, for the deaneri Totnes, Ipplepen, Moreton, and Woodleigh, dered vacant by the death of the late Mr. Reade, M.A.

With a view of coping with the incre requirements of the coal industry in the Vale, the Great Western Railway Company placed a large contract in the hands of Alde T. Goldsworthy, of Newport, Mon. Nearly miles of a fresh line between Cwm and the pits of the Ebbw Vale Company have been pleted, and are now open for traffic. A new b has been erected over the river above Abe Junction.

The London, Brighton, and South Coast way Company have, in accordance with the re of the Camberwell Vestry, commenced to effec necessary repairs to their bridges which are i parish. The London, Chatham, and Dover Ra Company have agreed to do the repairs requir the vestry to their railway bridges, which numerous, in the same very extensive parish.

At Tuesday's meeting of the City Commissi of Sewers, a letter was read from the clerk t Bartholomew's Hospital, forwarding to the mission a joint report of Mr. E. B. I'Anson, architect, and Mr. Cousins, C.E., as to the r struction of the drains of the institution, and a and section of the works proposed, and they in the observations of the Commission upon The works would cost £3,142. The plans remitted to the medical officer of health an engineer, for their consideration and report.

A carved oak screen has been placed Thomas's Church, Stourbridge, as a memoria member of the church. It was designed b W. H. Bidlake, M.A., Birmingham, and is C in design. It forms a partition which divide vestry from the chancel. The bottom fram filled in with cathedral glass to admit light; this is a richly moulded string-course carryin screen up to the floor of the gallery, and fro level it is continued by moulded columns elaborately carved canopies supporting tra arches and a very handsome overhanging The whole is richly moulded and carved, ar structure is surmounted by a carved cross. work was carried out under the personal s intendence of the architect by Messrs. Jone Willis, of Birmingham and London.

The new Sunday-school in connection Hanover-place Wesleyan Chapel, Leeds, was o on Tuesday. The new school has been erected the designs of Mr. G. F. Danby, architect, on ground immediately adjoining the chapel. building comprises an assembly room 70ft. by lighted by large windows to the front, an clerestory windows on each side. Ten class-r varying in size, are placed at the sides. The are ventilated by inlet tubes and extracting and warmed by the low-pressure hot-water sy In the basement an apparatus-room, kit stores, and other conveniences are placed. buildings are of pressed bricks, with stone dres The work has been carried out at a cost of £2,000, by Mr. P. Stather and Messrs. J. Le and Sons.

Our Office Table.

A DISTRICT SURVEYOR" calls attention to the isions of the London Sky Signs Act passed session, which are more wide-reaching and ngent in character than is generally realised. measure provides that all such signs within Metropolitan area must be removed under y penalties, unless, on or before the 3rd of ber, 1891 (Saturday in next week), the er applies in writing to the district surveyor a survey and inspection of such sign and a ificate of its safety. The district surveyor not grant a certificate unless the application be le to him within three months after the passing he Act, and no sign can be allowed to remain out such certificate has been obtained. The ding of the Act appears to include all boards of public-houses and other places business which rest upon a cornice in t of a parapet or blocking course, hey do not rest immediately upon the top of wall or building, the top of the building ng the highest part of the roof, and the cornice g a projection from the roof. It will be the y of the district surveyor to report to the ncil from time to time all such signs existing his district, and the County Council will be nd to prosecute any offender against the Act, l no cautionary notice is due to any one.

MR. HARRY HEMS, of Exeter, who, as an sociate of the Society of Architects, was one of se presented to the King of the Belgians at palace at Ostend on the 15th ult., has, since return home, sent His Majesty a series of otographs illustrative of various works—both sculpture and church furniture—he has carried for different cathedrals, churches, or public ildings in this country and elsewhere. Writing m the Palais de Bruxelles on the 17th inst., King, in graciously accepting "reproductions photography of such beautiful works, in all of ich great talent is very manifest," adds that "returns sincere thanks for the honour and ention the gift conveys, and feels charmed to rn that Mr. Hems and his friends possess such asant remembrances of their recent visit to lgium."

THE project for making a photographic survey Warwickshire, "that shire which we heart of ngland well may call," is making satisfactory ogress. At a meeting of the committee, held Birmingham on Wednesday week, under the esidency of Mr. J. B. Stone, a number of otographs of churches, timber cottages, llage streets, and geological sections were nded in by various members, were approved d ordered to be mounted and framed. It was ported that many members of the section had en at work for the survey during the summer, d that some hundreds of negatives of points of terest in the county had been secured. An hibition of prints from these negatives will be ld in Birmingham during the coming winter. was resolved that only prints executed in atinum or carbon, and on bromide paper, be cepted for the purposes of the survey.

AFTER years of mismanagement and delay, the ock and bells placed in the General Post-office ower at Sydney, N.S.W., were formally in- ugurated by Sir Henry Parkes on the 25th ult. he present contract for the clock and bells was ntrusted to Mr. Henry Daly, of Sydney, under hose immediate supervision a clock has been onstructed by Messrs. J. B. Joyce and Co., of Whitchurch, Salop, from the designs and speci- cations, and under the general direction of, ord Grimthorpe. The clock is placed in the ower at a height of 150ft. from the ground, and as four dials, each 15ft. 8in. in diameter. At further height of 60ft. above the dials a lantern as been erected on each face of the tower, in hich an electric lamp will give an hourly flash f 5sec. duration. The bells are five in number, he largest weighing 5 tons, and they chime the Cambridge (or Westminster) quarters. The oisting of the clock and bells, with all their ear and massive iron framework, was accom- olished, without an accident, by the contractor, Mr. Daly, under the general supervision of the Government architect, Mr. W. L. Vernon, F.R.I.B.A. The total cost of the Post-office, which was built in 1881, has been £270,000.

AMONG the reports issued by the Department of Mines in the Census Bureau at Washington s one showing the extent and value of the lime- stone industry in the United States. Ordinary limestone, to the value of £3,420,000 sterling, was produced last year from 1,954 quarries, by a force of 30,644 men, who received, in wages, a sum amounting to £2,025,000. The purposes for which limestone is used, and the extent to which it is employed in industries, are thus tabulated:—Building purposes, 5,405,671 dollars; converted into lime, 8,217,015 dollars; stone, for burning into lime, 184,000 dollars; flux, for furnaces, 1,569,300 dollars; street work, 2,383,000 dollars; bridge, dam, and railroad work, 1,290,000 dollars; and miscellaneous uses, 46,000 dollars. The amount of lime does not include lime produced by lime burners, who purchase stone from quarrymen, and burn it into lime. Limestone is produced in thirty-nine States and two Territories; but nearly two-thirds of the value of the product is confined to seven States. These seven States are Pennsylvania, Illinois, Indiana, Missouri, New York, Maine, and Ohio, and the value of the product in each is in the order of the States named. Maine heads the list in the value of lime produced; yet Pennsylvania produces more than twice the quantity produced in Maine. The great difference in the relative value of the product of these two States is accounted for by the fact that a large proportion of the lime produced in Pennsylvania is used for agricultural purposes, which require only inferior descriptions; whereas the lime from Maine is almost entirely used for building purposes in many of the principal cities on the Atlantic coast.

ANOTHER U.S. census return deals with the occurrence, production, and industrial uses in the United States of that class of sandstone known as bluestone. It is produced in three States only, New York, New Jersey, and Pennsylvania. The aggregate production last year was 5,126,340 cubic feet, valued at nearly £310,000 sterling, the greater part of the cost going in the labour of extraction. There are 1,793 persons engaged in the industry, and their wages are about 86 per cent. of the total cost of working. Bluestone consists of exceedingly small particles of silica cemented together with the same material. It is hard and durable, and is therefore peculiarly suitable for paving and curbing streets, and it is mostly devoted to this use. The stone is produced principally in the form of flags. Originally it was quarried for this purpose only, but recently it has been used for rubble masonry, retaining walls and bridge stone, foot pavements, street crossing, curbing gutters, flooring, and many similar purposes. The colour varies from dark blue or slate to bluish-grey, and sometimes it presents a greenish tinge, and in other cases a brown. It is known commercially by a number of names, designating approximately the region from which it is taken. A certain amount of stone is quarried from regular quarries, with invested capital and plant suitable for the purpose; but a large amount is produced irregularly and spasmodically by men who invest no capital and have no regular organisation. The formation of the stone-bearing ledges is irregular, and many are exhausted after a short time. The area of the three States in which bluestone is produced is estimated at 26,897 square miles. Of the total amount produced there New York supplies four-fifths. Of the total production three-tenths is classed as dimension stone, produced in regularly worked quarries, while a little more is classed as rubble and bridge stone. The total number of systematically worked quarries is given at 217, of which 142 are in New York.

ON Wednesday, July 1, Mr. W. A. Stuart, the manager in Sydney for the Granolithic Pavement Company, invited a large number of influential citizens, including the Mayor of the city, and many professional men and builders, to inspect the Granolithic pavement laid down in the New Imperial Arcade, between Pitt and Castlereagh-streets. The pavements in the basement and first floor were inspected, and then the company adjourned to the large dining-room upstairs in Castlereagh-street, where a light repast had been provided, and Mr. Stuart explained the process of manufacture. His Worship, the Mayor of Sydney, proposed the health of Mr. W. A. Stuart, and success to the undertaking. He referred to the life of pavements in use in Sydney, and to the especial durability of the Granolithic pavement. He believed it would yet be proved to be a most suitable substitute for asphalte, sandstone, and even other better-proved paving-stone. Mr. Stuart's energy in establishing these works there deserved their best encouragement, and he asked them to drink to his success. Mr. Thomas Rowe, F.R.I.B.A., said that, having to consider the safety as to the slipperiness of a sloping floor like that of that great Arcade, they had chosen this Granolithic pavement of Mr. Stuart's, of which they had seen samples which had been five years in use, and their experience of it was that its light colour had materially assisted in the splendid light which was now to be found in the basement of the building. He was sure Mr. Stuart had no wish to depreciate other good pavements. He knew of places in Sydney where Caithness flagging had been in constant wear for twenty-nine years, and was yet good, but he thought the Granolithic pavement second to none, and, as a local production, it was specially worthy of patronage. The toast was drunk with three times three. The proceedings were brought to a close by drinking the Mayor's health.

CHIPS.

A Baptist Sunday-school is to be built at Hull, the architects being Messrs. Mawson and Hudson, of Bradford.

A portrait of Sir James King, ex-Lord Provost of Glasgow, is to be formally unveiled next week in the municipal buildings in Glasgow. Mr. E. A. Walton, A.R.S.A., Bath-street, Glasgow, was the artist commissioned by the corporation. Sir James is painted in full official robes.

In sinking a well for the Natatorium, at Fort Worth, Texas, a flow of water has been struck which exceeds that of any artesian well known. The flow is at the rate of 600 gallons per minute and the water is as clear as a crystal. The well has a depth of 1,052ft., with a 10in. bore at the top, tapering to 5in. at the bottom. Prior to the present discovery, the largest flowing well was that at Bourne, in Lincolnshire, the discharge of which amounts to 500,000 gallons daily.

The amount of building that has been done in Toronto during the last eight months is almost phenomenal. The estimated figures show an increase of 2,132,783dols. over the value of the buildings for which permits were taken out during the corresponding period last year, the value of works being almost double.

A Celtic cross of grey Cornish granite has been erected in Iron Acton Churchyard to the memory of the late Captain Liddon. The cross is carved with panels of interlaced sculpture in relief. It is raised on three steps of the same kind of granite, on which the inscription is engraved. The total height is 8ft. 6in. The work has been designed and executed by Mr. H. Tyley, sculptor, Bristol.

Canonbury House, the historic residence of the Comptons, has been presented by the Marquis of Northampton to the parish of St. Stephen's, Canonbury, as a vicarage.

Messrs. Cunningham, Blyth, and Westland, C.E., Edinburgh, have been appointed consulting engineers of the North British Railway Company.

In celebration of the completion of a lofty circular chimney-stalk at the Ely Paper Mills, near Cardiff, the contractor, Mr. George Nelson, of Wolverhampton, entertained the men engaged on the work at dinner at an hotel at Canton, Cardiff, on Wednesday week.

By the death of Mr. Anthony Welsh, which took place with appalling suddenness in his office on the afternoon of the 19th inst., Leeds loses one of its oldest trading citizens. It was to Mr. Welsh's genius that the present machinery for the finishing of marble was due. In certain styles of work his firm stood alone. He was 72 years of age.

New Wesleyan schools are about to be built in the Mint, Holbeck, near Leeds, from plans by Mr. T. Butler Wilson, of Leeds and Harrogate.

The Russian Minister of Ways and Communication has placed before the Imperial Council a plan for the new commercial port at Theodosia, and it has been passed. The length of the protecting breakwater is to be 2,044ft., and 21ft. thick at its narrowest part. The work is expected to be finished in four years, and the Minister has received a grant of four million two hundred thousand roubles towards its construction, which will entail an outlay of twenty million roubles.

The rector of Hexham has presented an organ to the noble abbey church of Hexham, and its erection was commenced on Tuesday by the workmen of the maker, Mr. H. Farrant, of Brighton. It is being erected in the south-east bay of the chancel, and will thus be of assistance to the choir. It is not intended to remove the present organ. The new organ is of considerable power, and its cost is about £400. It has 20 stops, and the number of pipes is close upon a thousand.

Trade News.

WAGES MOVEMENTS.

CHESTER.—The Operative Bricklayers' Society is endeavouring to secure that a uniform minimum wage of 8d. per hour shall be paid to its members in this city. It is stated that whereas most of the larger firms in Chester pay this rate, the smaller builders offer 7½d. only.

EVESHAM.—Both the carpenters and bricklayers of this town have obtained an advance of ½d. per hour in wages—viz., from 6d. to 6½d.

THE LONDON CARPENTERS' STRIKE.—This dispute remains in the same phase as last week, the chief fresh feature being that a free register office for men who are willing to return to work at the old terms has been opened at the offices of the Central Master Builders' Association in Bedford-street, Strand. The United Trades Committee, to whom Mr. W. Apperley is acting as secretary *pro tem.*, during the illness of Mr. Watts, have received this week several grants from other trades, including £200 from the Operative Bricklayers' Society and a promise of a levy of 3d. a member per week till the strike ends, equivalent to about £50 weekly, and also £100 from the Miners' Union at Durham. The strike allowance was raised last week from 10s. 6d. to 11s. A great demonstration of all branches of the building trades will be held at Hyde Park next Sunday afternoon. The strike has now lasted twenty-two weeks.

An adjudication in bankruptcy has been made in the case of William Hunter Turner, of Finsbury-pavement, E.C., architect and surveyor.

The members of the Yorkshire Archæological and Topographical Association visited Pontefract Castle on Wednesday, under the guidance of Mr. Richard Holmes.

Mr. Thomas Mobley, of Mosley-road, Birmingham, the father of the brass-founding trade, died on Wednesday, aged 87 years. Until a few weeks ago he worked regularly at the works of Messrs. Tonks, Limited, by whom he had been employed for no fewer than 73 years. He was senior trustee of the Brassworkers' Association.

CHIPS.

M. Narcisse Berchére, a famous painter of Oriental subjects, born at Etampes in 1819, died in Paris on Tuesday.

The Preston town council have adopted the resolutions of the Ribble Committee and the Parliamentary Committee, expressing the view that it is not advisable at present to make any further application to Parliament with regard to the Ribble Navigation works.

Sir James Kitson has presented to the Fine Art Gallery of Leeds, his native town, Sir Frederick Leighton's picture, "The Return of Persephone," one of the most popular works in the late Academy Exhibition. The President of the Royal Academy executed the work for the donor with the knowledge of its ultimate destination.

At the Wycombe petty sessions, on Friday, Benjamin Grimsdale, builder, of Hughenden, was charged with laying stones in North Dean-road to the danger of persons travelling thereon; but the case was dismissed, no proof being forthcoming that defendant actually laid the stones, or ordered them to be laid thereon.

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TENDERS.

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BARNET.—For sewering works at the railway for the rural sanitary authority:—

Nicholls, W.	£55
Austin, W. (accepted)	36 1
Osenton, G.	36

BILSTON.—For lighting the market hall, for provement Commissioners:—

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Siemens Bros., Limited	649
Wallsall Electrical Co.	625
Manchester & Edison Electrical Co.	510
Crompton Co., London	500
Anderson F. Scott, Chelmsford ...	315

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LIVERPOOL: 6 & 8, HATTON GARDEN.
GLASGOW: 47 & 49, ST. ENOCH SQUA



Photo-Lithographed & Printed by James Akerman, 6, Queen

VIEW · INSIDE · THE · TEMPLE · CHURCH · NORTHAMPTON ·

DRAWN · BY · J · DONKIN · ARCHT



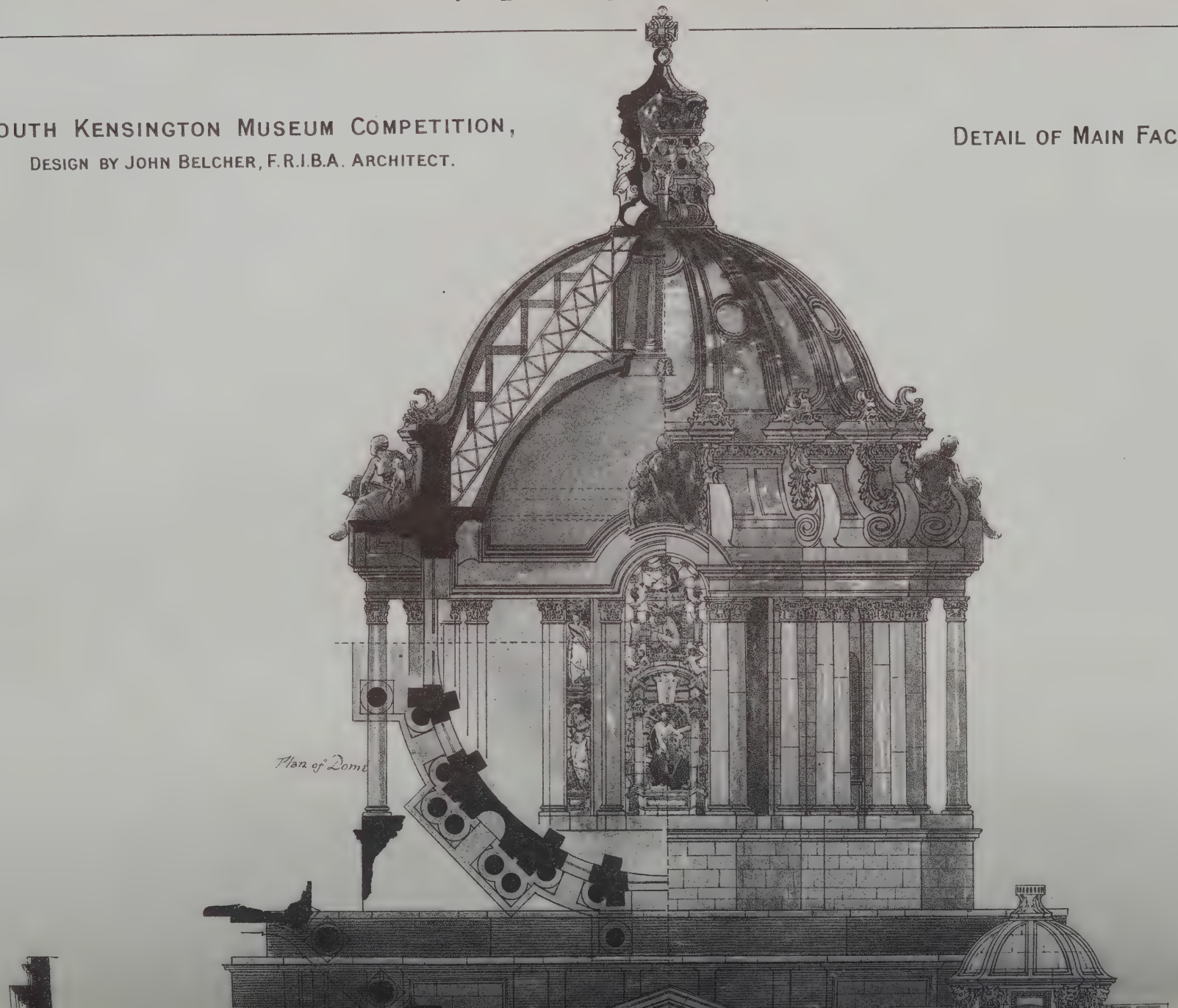
"PHOTO-TINT." by James Akerman, 6 Queen Square, London, W.C.

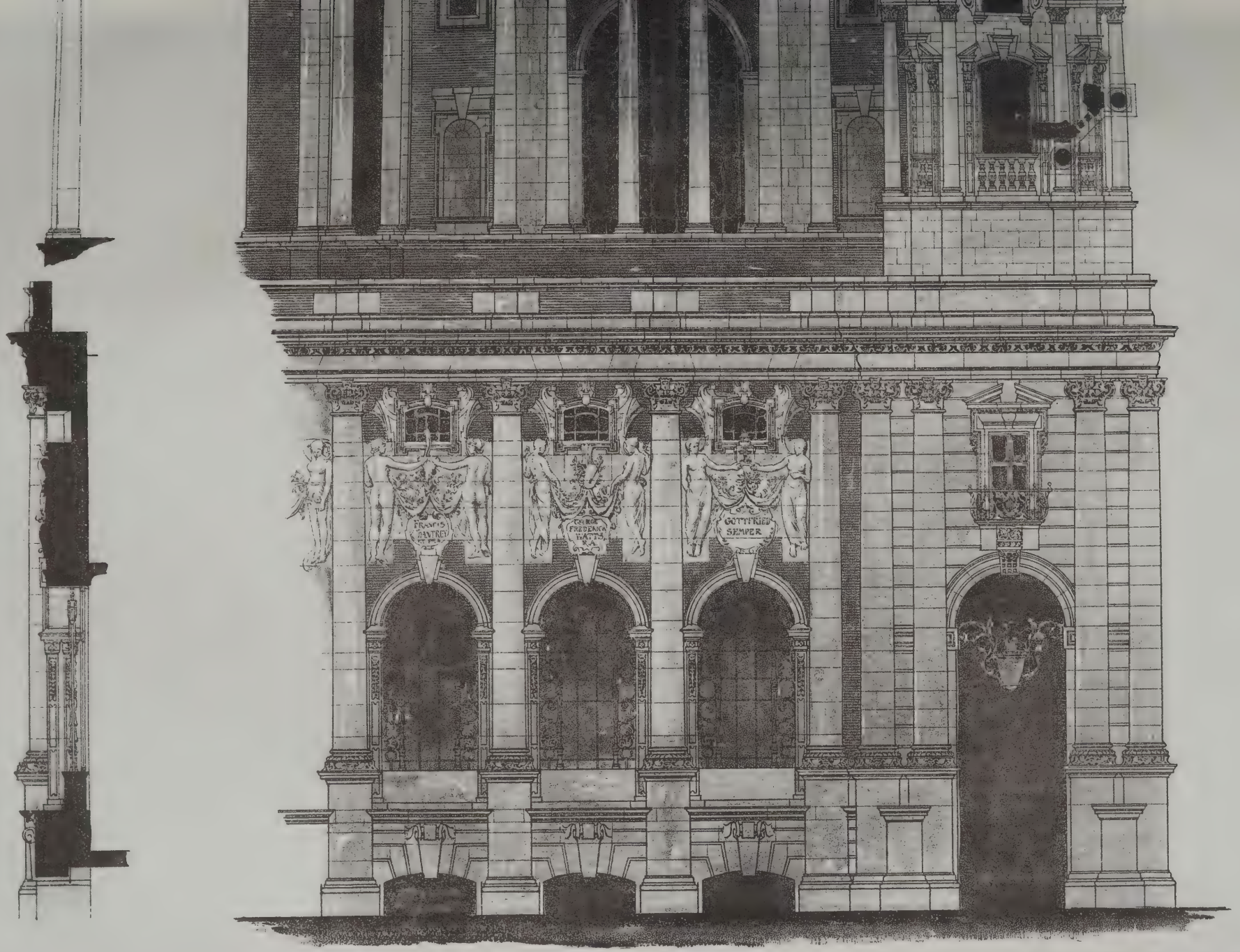
THE · DESCENT · FROM · THE · CROSS · BY · N · H · J · WESTLAKE · F · S · A · MAYNOOTH · COLLEGE · CHAPEL · Wm · HAGUE · ARCHITECT ·

SOUTH KENSINGTON MUSEUM COMPETITION,

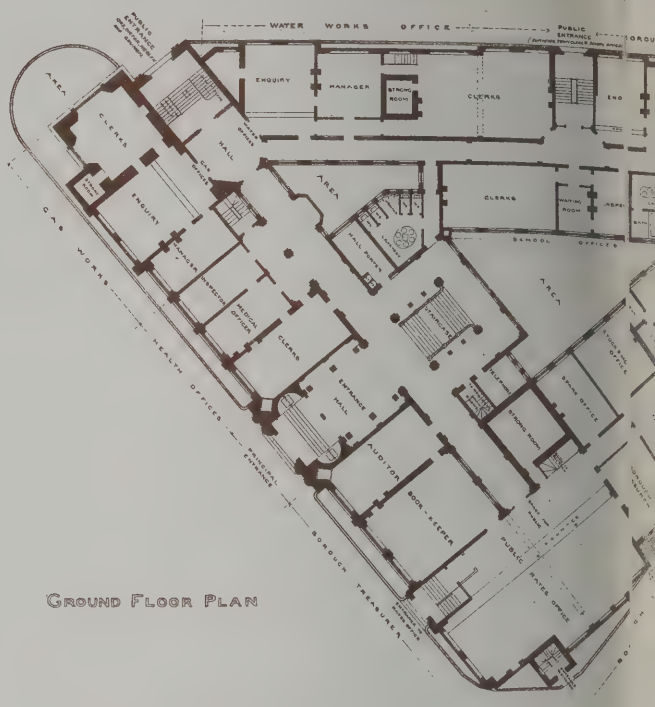
DESIGN BY JOHN BELCHER, F.R.I.B.A. ARCHITECT.

DETAIL OF MAIN FACADE.





"PHOTO-TINT", by James Akerman, 6, Queen Square, London, W.C



GROUND FLOOR PLAN

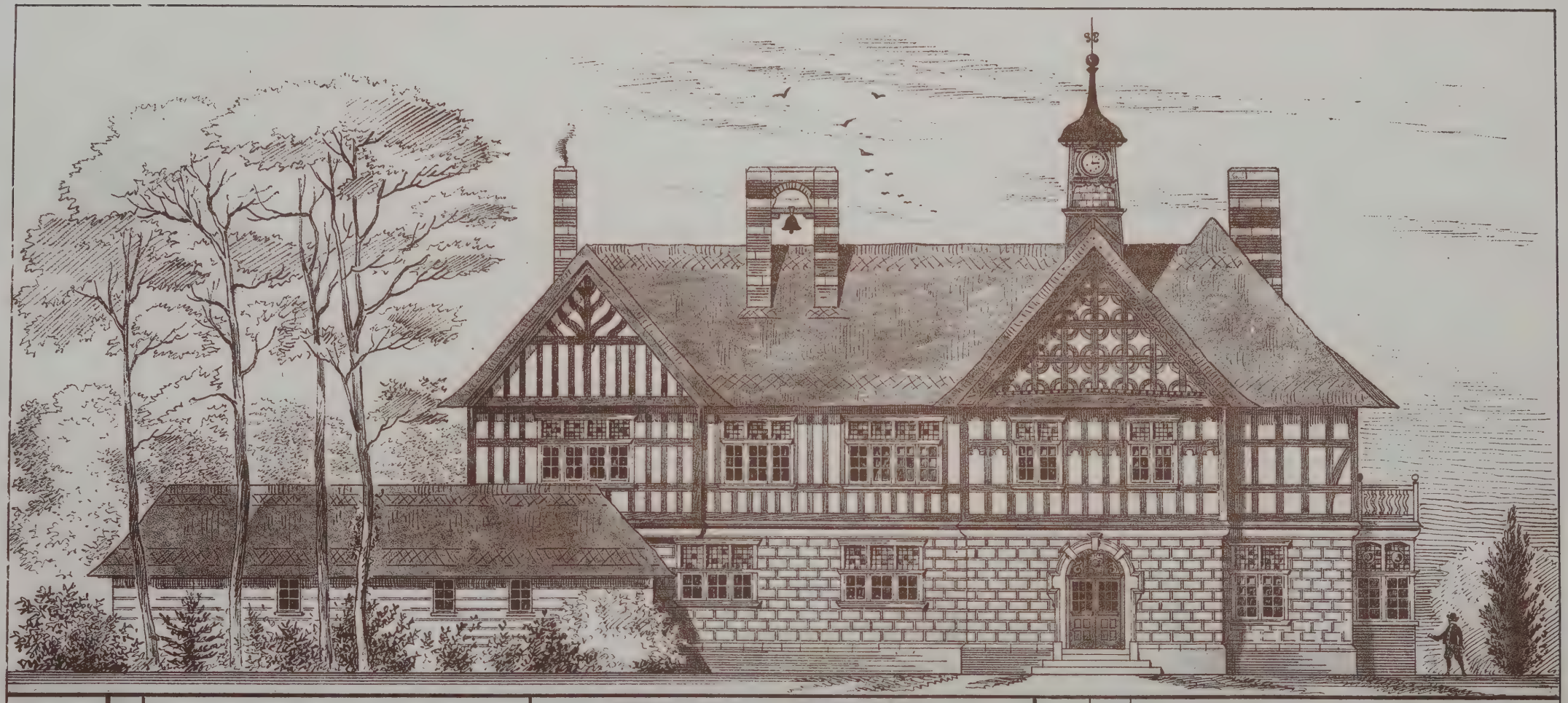
BURY MUNICIPAL BUILDINGS



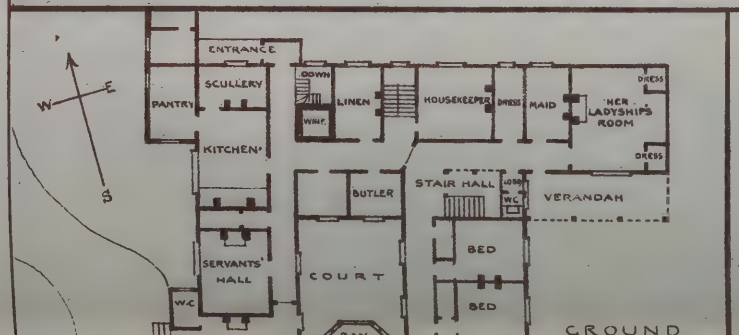
FIRST FLOOR PLAN



DESIGN BY H. HOPTON, ARCHITECT



ENTRANCE ELEVATION



GROUND

A BUNGALOW

NINE MILE RIDE

BERKS



UPPER



"PHOTO-TINT," by James Akerman, 6, Queen Square, London, W.C.

HE BUILDING NEWS
AND ENGINEERING JOURNAL.
VOL. LXI.—No. 1917.
FRIDAY, OCTOBER 2, 1891.

THE STUDY OF DETAILS.

O part of the architect's labour entails so much skill and thought as that olved in preparing details. A good design y be produced without much care in this ject; its proportions, its plan, its archi- ure may be tolerably perfect, yet it may very far short of a successful scheme, ng to an imperfect study of those details conveniences which go so far to make a kable plan. By "details," we do not y speak of architectural details—a subject te distinct from those matters which te rather to the technical and practical lifications of a design. At one time n the term "details" was mentioned, the itiate concluded almost naturally that it lied to features, to mouldings, carving, other accessories of the style of the lding. But it has now a much wider aning. The adjective "practical" would re aptly describe the details to which we fine our attention, and it must be remem- ed that every particular class of buildings its special details. Dwelling-houses l churches have their own. Of the latter, details would include such things as the ting, the arrangement of chancel stalls, yer-desk, lectern, pulpit, organ-chamber, ting and ventilation, exactly those points ich distinguish a well from a badly- anged church, and those which give the led ecclesiastical architect an advantage r his brethren less practised in such work. urches and houses are, however, built every ; their plans and details are within access, certain rules and definite information can btained regarding them. There are other ds of buildings about which the architect has knowledge. Take an elementary school. may never have designed one; he desires compete on equal terms with others o have had some practical experience of ool building. The Rules for Elementary ools issued by the Education Department nish information of a general kind, but do enter into the construction of various parts. instruction to competitors often is that ail drawings showing the fittings and the angement of a classroom have to be made ½in. or 1in. scale. One reliable course n to him is to visit a recently-built ool, and to take dimensions and details of fittings. Practical works on school lding seldom supply details, or if they do, y are perhaps inapplicable to the case in d. Suppose a competitor has to send in ails of a classroom. He must show the angement of dual desks and the size of sroom, the allowance of length to desk, about 3ft. 4in., the width gangways, the angle of desks, the ition of the windows, and other nts. He has to make his schoolroom of roper width, 18ft. to 20ft., to show the ups of desks, the accommodation to be vided, the number being calculated seated lesks and benches, these being graduated ording to the ages of the pupils. The gth of each group must be determined by width to be given to each, and thus, if n. per scholar is taken, the length of h group must be some multiple of that t. The gangways must be set out ween the groups of desks and benches, the whole group has to be determined the number of rows of benches and ks, usually three. All these are questions ch can be only answered by an exami- ion of school fittings. The technical ool, with its laboratories and classrooms, presents greater difficulties in the details. In the solution of such a problem the architect can only obtain satisfactory information by the inspection of the schools of Germany and Switzerland, or by those erected at Finsbury, the City and Guilds of London Institute at South Kensington, and a few other centres. These are not within the reach of every architect. Only one English treatise on the subject (that of Mr. C. E. Robins) in addition to illustrations that have appeared in our own journal from time to time of such buildings as that of the Owens College, Manchester, can be referred to for detailed information. Details of this sort must be the result of experience, no *à priori* reasoning is applicable; the wants of the class-room or laboratory must be found by knowing exactly the requirements of the teacher or demonstrator, together with those of the student in any particular class of science. In the event of an architect competing for a technical school or polytechnic institute, who has no experience of them, he must be prepared to devote some time to existing buildings, make figured sketches of the requisite fittings and dimensions, before he can, with any confidence, lay down the plan or prepare the detail drawings.

In making designs for such a building as a public library, considerable technical knowledge is required, as we have pointed out; it is not enough that a man is a good ordinary architect, for unless he knows something of the actual requirements of librarians, the necessary administration and the details of lending and reference libraries and news-rooms, he cannot be competent to send a good working plan. For municipal buildings a variety of technical knowledge is necessary. The departments of the borough accountant, the analyst, besides the town clerk and surveyor, are closely criticised by those officials, who soon discover any shortcoming in design. The requirements of the police and magistrates, as, for instance, in the arrangement of cells and police offices and the magistrates' court, are more technical. For example, the plan of a borough court ought to indicate the arrangement of the bench, the "dock" and its access, the witness-box, the jurors' boxes, and these imply a technical acquaintance with fittings. The boxes for jurors have to be arranged as galleries with risers, or steps, to each group. These groups must be determined by the number of seats, each of a certain allowance for jurors and witnesses. There must be a space for the public, with separate entrance. The partitions and framing must be designed of certain heights and widths, which dimensions are not a matter of guessing, but are regulated by certain rules. So, again, with a council chamber. Although an architect may dispose the seats for council in rectangular, circular, or segmental form, he must observe certain rules as to inclination or rise of benches, the number and size of groups, the mayor's platform, accommodation for town clerk, public gallery, and entrances for each class. And there is one thing to be observed here: the designer cannot properly determine the size or dimensions of his police-court or council chamber until he has calculated or arranged to scale the width and length of the seats and groups of seats or boxes according to a fair allowance to each person, so that before he can complete his general plan he must set out his fittings to scale. Each apartment, therefore, becomes a study in itself of details; the number of officials and persons to be accommodated, the unit-area for each, and the detail of the fittings or joinery, the lighting and ventilation having to be studied separately before the general plan can be determined on. How misleading and abortive it would be if we proceeded upon the other principle *à priori*—of conceiving a plan, settling the various sizes of rooms to fit our preconceived ideas, and leaving the details to take care of themselves! We should get results such as these: apartments too small or large for the accommodation, crowded and ill-devised fittings, insufficient access and egress, cramped space. No doubt this is the course often followed by competitors; they have little time to make themselves masters of these points of detail, and they fill in the fittings according to their own notions, or resembling something they have seen. Generally they hunt up plans of like arrangements, making their apartments conform to them in dimensions, but quite forgetting the differences of circumstances. Then some details are subject to alterations. Take as an instance an infirmary or an asylum. Precedents that were followed 20 years ago cannot be taken to-day. The growth of medical science and sanitation, as they affect health and mental disease, has resulted in the enunciation of certain principles of administrative and structural arrangements, which have very distinctly changed the ideas of plan and details. For example, we know what a complete alteration has taken place in workhouse infirmaries and hospital wards, chiefly owing to the need for classification and separation of the inmates, and also of floor and cubic space for each.

The details of lunatic asylums have also undergone considerable modification. Authorities have now recognised the advantage of the block system, each being independent and self-contained, and connected by corridors. Each block is a matter of study. The best arrangements of dayrooms and dormitories, infirmary wards and convalescent wards, and attendants' rooms, are points to be learned by actual experience in the working of those institutions from nurses and medical men engaged in them. The gallery system of connecting dayroom and dormitory is one point of importance. Wards for acute and other cases have to be provided also; each has to be complete in itself, with dayroom and dormitory, single rooms, lavatory, and bathroom blocks, scullery, store, and nurses' room, and it is the study bestowed on one of these self-contained blocks, with its details and fittings, upon which depends the success of the plan. The administrative department, with its stores, kitchen, and offices, the workshops and laundry, are all matters of detail, and he stands the best chance in a competition who has carefully considered and detailed his plans. Thirty years ago an architect might have neglected these points with impunity; but the requirements of Government departments have made it necessary that a considerable knowledge of special and regulation planning should be acquired. Blue-book evidence is now more necessary to an architect who devotes attention to these special buildings than tomes of artistic literature. Technical data can only be learned by personal observation and study. The details of various other buildings may be mentioned. The first class hotel calls for a special knowledge on the part of the architect of requirements and details that a few years ago was not required. Conveniences and luxuries have multiplied appliances to save labour, such as lifts, electrical fittings, and sanitary apparatus. Even the model lodging house must have an arrangement of dormitory and day-room, calculated to give the utmost comfort to each individual tenant; its offices and administration must be planned on economical principles, and its cubicles must combine all the desiderata necessary to health and personal comfort.

INSANITARY DWELLINGS AND FACTORIES IN LONDON.

SEVERAL useful sections of the Public Health (London) Act, which comes into operation on the first day of January next,

will probably create some dismay and uneasiness among owners of dilapidated and insanitary premises. We have already briefly dwelt on those provisions of the Act which more immediately affect buildings and underground rooms; but there are many others which will prevent the habitation of dwellings in such a condition as to be injurious to health. Thousands of the houses now let to tenants in London, especially in the older parts, must come within the provisions of this Act. It will be impossible for them to escape any longer the eyes of the officers of the sanitary authority. The list of nuisances that can be abated summarily is a formidable one, for the Act takes cognisance of matters that have long escaped attention. Landlords let houses that are injurious to health in many ways. They are let and occupied when they have defective and leaky roofs, stopped-up or broken guttering and rain-water pipes, choked closets, or ashpits, that have choked and noxious drains, inferior water fittings, cisterns, and damp walls. They are let also to several families when they have only proper accommodation for one, all of which things are to be henceforth dealt with as nuisances. Whether those who will have to administer the provisions of this Act will exercise their discretion in certain cases or not remains to be seen; but the law, as amended, will very materially alter the condition of dwelling-houses in many neighbourhoods. There will doubtless be some difficulty in obtaining information of defective dwellings; many insanitary dwellings will remain, while others will be reported; but it is the duty of every officer and relieving officer to give information—any person, in fact, may prefer information to the authority. Owners and occupiers will be responsible if the person creating a nuisance cannot be found. We can hardly imagine what the effect of this section will be on houses and factories which are now in a dilapidated, defective, and insanitary state in the Metropolis. Owners and occupiers will have to put them in order, or take the consequences of neglect; hundreds of dwellings will become liable for being overcrowded in the denser parts of London, and the result must be that a large proportion of them will be deemed to be unfit for human habitation, and be closed. Let us imagine a house, for example, where the nuisance is an absence of "water fittings," under section 33 of the Metropolis Water Act, 1871. Should a pipe be less weight per lineal yard or be less in diameter than prescribed, or should a house be without a separate "communication pipe," or the connections be different to those prescribed, the house in which it occurs would be placed under the ban. How many houses are without the regulation cistern, the "ball-tap" does not act, or is not of the "valve kind," overflows or waste pipes are used contrary to the regulations, there is no waste preventing apparatus to closet, and the draw taps are of the wrong pattern. A fine of £10 is imposed on any person who does not comply, or a "nuisance" order may be made against the defaulting person, and this order may take one of several forms. It may be an "abatement order," giving the person certain time to abate the nuisance, or it may be a "closing order" which prohibits the house from being used for habitation. Appeals against a nuisance order may be made to the quarter sessions if it includes a closing order, and we have no doubt this provision under section 6 will be largely taken advantage of, especially in those cases involving the execution of structural alterations. But a substantial reason must be given for appealing, and the Court will not take into account an appeal made for the mere purpose of delay.

We cannot imagine that many premises will escape the law, for the sanitary authority have power to enter premises from time to time to examine their state, and this they may do at any time of the day.

One section (25) will deal with workshops and bakehouses, will see that they are limewashed, cleansed, or purified. The authority have power to enforce sections 34, 35, and 81 of the Factory and Workshop Act, 1878, and sections 15 and 16 of the Amendment Act, 1883, which relate to cleanliness, ventilation, and sanitary conditions. How many factories and workshops and bakeries will be doomed under these sections we do not like to say. These Acts have not been enforced in many cases by the existing powers. Dairies, too, will come under close inspection; persons carrying on the trade of dairyman will have to be registered, and the cattle, lighting, ventilation, drainage, and water supply will be brought under inspection. This legislation not only applies to new but also to old buildings and premises, and the County Council reserve power to make special orders and by-laws. Under those conditions we shall see many sweeping changes and alterations during the next few years. The provisions we have referred to will have one good result; there will be a large impetus given to rebuilding of old premises and factories, and many streets and neighbourhoods will be changed in their character. "It is an ill wind that blows no one any good." In this case the nuisances that have been suffered to exist so long have brought into operation an Act that will give increased employment to architects and builders, so far, at least, as the Metropolis is concerned. Of one thing we may be sure, and that is that many old premises that have hitherto survived the operations of many recent Acts will under the Public Health London Act meet their doom, for it will be impossible to patch and mend them sufficiently to escape condemnation under one section or another.

Recent Acts levelled against insanitary dwellings have only been partially operative—that is to say, they have escaped on some grounds—but the application of the provisions of the Public Health Acts to them will have a more radical effect. Unhealthy houses and factories cannot possibly, under the new provisions, survive much longer; they have practically rendered their existence untenable. Both on structural and sanitary grounds they must succumb to the renewed attack and the amended requirements of the age.

THE PHOTOGRAPHIC EXHIBITION, PALL MALL.

THIS week the annual gathering of photographs, and show of appliances connected with the art, has been opened by the Photographic Society of Great Britain in the Galleries of the Royal Society of Painters in Water Colours. Among the architectural views there are several which deserve mention, and a few rank as works of the first order of merit. In this class, however, we miss examples from the cameras of Mr. Richard Keene, Messrs. Fry, and Mr. Essenhigh Corke. From Ireland, Mr. W. H. Banks sends a nice view of Adare Abbey, with its fine lancet windows, and a study of the Round Tower and Cormac's Chapel at Cashel. His photograph of the beautiful and rich tomb from Holy Cross Abbey deserves, too, a good word. Col. J. Waterhouse, of Calcutta, is a first-rate photographer, who evidently takes a considerable interest in historic buildings. The specimens of his work shown here are from Hallstadt, Austria; the Rialto Bridge, Venice; and autotype enlargements of views from Cairo, the Great Pyramid, the Sphinx, and the Temple of the Sphinx. The largest views of buildings in the gallery are those by the Woodbury Company, such as the carbon picture of the interior of Chester Cathedral, Hawarden Castle, and Chatsworth, shire. All these are admirable, of cour the most successful work of this co exhibited this year is a bird's-eye v Oxford from the Magdalen Tower, l up "the High," with St. Mary's spire middle picture, and Christ Church distance. The quadrangle of Mr. Jackson's new schools figures well left, and exhibits its harmony wi historic buildings of the University. Oxford, Mr. C. Court Cole also cont some small but exceedingly crisp an photographs, such as the Burne-Jon dow in Christ Church Cathedral, D at New College, St. John's College and a grand interior of the nave of Church, showing Cardinal Wolsey' vaulting in the choir to perfection. Morton takes us to Westminster where he does the interior justice; Mr. F. W. Edwards exhibits a study of the new portals and fa the north transept of the Abbey He likewise contributes a big of Carisbrooke Castle Gateway, platinotype of Sir Frederic Lei "Athlete Wrestling with a P Mr. Harold Baker, of Birmingha taken a highly satisfactory series o interior views of the New Law Co Birmingham (the design of Messrs. Webb and Ingress Bell), some of wh here shown, including those which produced when the Courts were ope July. All these are of handsome an works, either imposing in scale, portant from historic association contrast with them, we single out th Inn Staircase at Dedham," by Mr. Urquhart, for special commendation, a photograph and for the simple and ing character of the old building repre There is nothing *chic* about it, a "fetching" bits of detail: all is as and bald as possible. Yet it is this p reserve and quaint suitability whic stitutes its peculiar fitness and meri country is full of similar old pict bits of Domestic work, but Mr. U has shown his good taste in selecti example, and we thank him for sho so well. Dr. J. H. Martin sends v the south porch; the Lady chapel; t and ambulatory of Gloucester Cath but, from an architectural poi view, they are not so defined, or, p "hard," as detail study renders nec Mr. G. F. Jones, F.R.I.B.A., has figured as a skilful photographer, an we note with pleasure his contributio Gilling Castle and the Lodge, Malto gains variety by further studies fr Porte Vecchio and the Corté, Corsic Tore Waterfall, Killarney; Killic Brodie Castle and Queen's View, Loch mell. Kilmalkedor Church hangs n Mr. W. H. Banks, and then we not warm, brown view by Col. W. L. N of Cockington Church, South Devon Reeves is represented by some good in of modern houses at Weybridge and hurst, and Mr. Bedford Lemere sends of equally clear photographs of Holly House; Newcastle Music Hall; Audle Craigside Chimneypiece, by Mr. N Shaw, R.A.; Queen's-gate, Kensingt Winterford, Surrey. The Survey ment of India show some photo-etch architectural details connected wi survey of Western India; but there novelty in the process thus applied. J. Russell and Sons are to be congra for their panel pictures of the and sanctuary of Clumber Church by the Duke of Newcastle fro designs of Messrs. Bodley and The views here seen illustrate th screen and stalls, with other fittings erected, from the pencil of the Rev. Geldart, and workshops of Messrs. C

ckley. Before passing on to the general ojects, we have in conclusion to notice a ital set of small silver prints by Col. T. D. Jodrell, M.P., from the Nile, illus- ting "Pharaoh's Bed," Osirides, the meseum, and other noble ruins at Kar- k and Thebes. "Chingford Church" in a ghbouring frame, by Messrs. Webber, we ed for its picturesqueness.

The medal of the society has been well arded to the Autotype Company for the endid autogravure of Mr. F. Brangwyn's Outward Bound," one of the most forcible scapes in last year's Academy exhibition. e chromo-photos from sensitive plates, and our screens are interesting, showing how ments can be introduced by mechanical ans, aided by photography. Mr. E. S. epherd shows a small study of "A Pot of owers," and Mr. F. Hanfstaengl is repre- ted by a chromogravure of "Love's ken," a picture by O. Peck, the painter. . R. W. Robinson takes a medal for a dy picture of "A Primrose by the river m," a love scene of rural sweetness. Mr. llyer is as good as ever, and so is that otographic master, Mr. S. Gale.

CHMOND MAIN DRAINAGE AND PRECIPITATION WORKS.

THE formal opening of the works carried out by the Richmond Main Sewerage ard for the collection and precipitation of e sewage of five adjoining parishes, in- ding Barnes, Mortlake, Kew, and Peters- m, took place last Monday afternoon by e Right Hon. Charles T. Ritchie, M.P., esident of the Local Government Board. therto the sewage of these districts has en mainly discharged into the Thames; through the efforts of the Richmond ban and rural sanitary authorities (the ir above-named parishes constituting the ter authority) this state of things has been ered, and the present complete and well- ised scheme is the result. Many schemes ve been proposed and inquiries held ce the first joint board took the tter in hand in 1877, one of which was roject by Colonel Haywood for dealing h the sewage by irrigation on land at lesey. This plan was opposed by the idents. The next scheme, by Messrs. nsergh and Melliss, consisted in collect- the sewage at Mortlake, and disposing it by precipitation over 50 acres of land. inquiry reported favourably; a Bill for nfirming a provisional order to acquire d was referred to a Select Committee of House of Commons, but rejected by m, and a report was made recommending dissolution of the joint board, and that district be subdivided into several sepa- e districts, and the Richmond urban and al parishes be combined as one of such arate districts. Ultimately the joint rd was dissolved in 1885, when Mr. J. C. lliss, M.Inst.C.E., proposed to the Rich- nd Vestry a scheme for dealing with the age of Richmond and adjoining parishes the lines recommended by the House of nmons Committee, and his plans were visionally adopted, a site was purchased, an agreement between the urban rural authorities was sealed in 1886. e present works were commenced in 8; but owing to delays and diffi- ties, they have only now been com- ted. Each of the parishes has an let for the discharge of its sewage at a level, and these outlets are connected by n intercepting sewers about five miles in gth, and at a depth of from 20ft. to 45ft. ow the ground. These are of stoneware ket-pipes, cast-iron socket-pipes, con- e, and brick, and vary in size—the ner 12in. and 15in., the cast iron 16in. 24in., and the concrete and brick 27in. 0in. in diameter, their sizes being calcu- lated to receive only a limited quantity of rainfall. The stoneware and cast-iron sewers are laid in and surrounded with Portland cement concrete; and those of concrete are lined with radiating Staffordshire blue brick inverts and Gault brick arches, all pressed. The gradients are said to vary from 1 in 250 in the smallest to 1 in 1,200 in the largest sewers.

Let us now describe briefly the plan which Mr. Melliss has carried out with apparently good results at Mortlake. The sewage of 80,000 persons in the whole area between Hammersmith Bridge and Putney boundary on the north-east, and Ham House boundary on the south-west (five miles in distance), flows by gravitation to the spot selected for the works on the edge of the river, and of about 11 acres in extent. The invert of the outfall sewer and pump chamber is 25ft. below Ordnance datum and 43ft. below floor of engine-house. The dry-weather flow is estimated at $2\frac{1}{2}$ million gallons per day, and the wet-weather flow $5\frac{3}{4}$ million gallons. Overcharging of the sewers cannot well take place, for when the sewage rises to a certain level in the sewers and pump-chamber, the fact is recorded by an automatic arrangement of electric bells to the foreman and engine-room. The main sewer ends at the pump-chamber, where it is 3ft. 4in. in diameter. There are several manholes of special self-cleansing sections. We will suppose the crude sewage has reached the works. It passes through a strainer of iron rods which arrests solid matters of some size, into the pump-chamber. Here are three sets of single-acting plunger pumps for lifts of 43ft., driven by three 50H.P. compound horizontal engines, each set capable of raising 4,000,000 gallons per day, and together 12,000,000 gallons. Here it receives a small dose of milk of lime from the vats in the chemical mixing room, and is pumped up to a covered channel along the side of pump-house, then flows into an inlet channel for treated sewage, which runs along the upper side of the 11 precipitation tanks. In its course, before entering this channel, it is further strained by passing through a close-bar strainer, and receives in a second chemical mixing-room a dose of a solution of sulphate of alumina, carbon, and iron, being thoroughly mixed therewith by an agitator. The treated sewage is then allowed to flow into one or more of the precipitation tanks, as required, the liquid flowing over weirs of the entire width of the tanks; the first, or inlet weir, running along the upper end, and the overflow weir, for effluent water, at the lower end of the tank. After passing over the latter, the effluent is carried away by a channel to the outlet at the north-east corner of works into the river. During the flow of the treated sewage into the tanks precipitation takes place; the precipitate or matters held in suspension sinks to the bottom of tanks, while the supernatant water, cleansed of its impurities in suspension, and much of those in solution, flows over the lower weir into the effluent channel. When required, the effluent water can be allowed to enter filter-beds, made of layers of gravel, sand, and carbon, the surface being covered with a layer of earth sown with grass. These filter-beds, eight in number, occupy $1\frac{1}{4}$ acres, and are partly high-level and partly low-level, and are located below the precipitation tanks not far from the river's edge. A channel for low-level supernatant water with valves runs all round these beds, and an inlet channel for low-level filters. The tanks are emptied once a day, a period of repose being given each by shutting it off from the inlet treated sewage channel by valves; the water is then drawn off by a floating valve, the upper portion of the water flowing on to the high-level filter-beds, and the lower portion to the low-level filter-beds.

The collection and disposal of the sludge and precipitate forms an important part of the scheme. The tank bottoms have a slope to form a channel along one side, and the sludge and water gravitate into a long covered passage, thence into the sludge chamber beneath the press-house. Subsidence here is resumed, the supernatant water is drawn off and flows back into the pump chamber to be re-treated. The sludge, deprived of much of its water in the chamber below the press-house, is lifted by pumps into iron receivers, each containing a charge for one press. Here it is limed and forced by rams into presses, the water pressed out passes to the pump-chamber, while the sludge cakes, measuring 3ft. square and $1\frac{1}{2}$in. thick, are removed from the presses. These cakes are odourless, and may be stored away for use as a manure, their value being, it is stated, rather higher than the best farmyard manure. The board intend to utilise these sludge cakes for raising low-lying land. The process of pressing and the removal of the sludge cakes shown to the visitors on Monday is extremely simple and cleanly. The presses comprise three of Messrs. Johnson and Hutchinson's 36in. square machines, each containing 30 plates and chambers. These are provided in duplicate. The present sewage will produce 10 tons daily of this solid residuate. We may add that the works have cost about £120,000, the annual cost of pumping the sewage and other operations is put at £3,500, and this, together with repayment of capital and interest, will not, it is expected, exceed a rate of $7\frac{1}{2}$d. in the pound. The contractors for the sewers are Messrs. Nowell and Robson, of London; the pumping and precipitation works have been completed by Mr. W. Webster, of St. Martin's-place, Mr. C. Dickenson being the first contractor. The pumps, engines, boilers, and mixing machinery have been erected by Messrs. Jas. Simpson and Co., of Pimlico; and the presses have been supplied by Messrs. Johnson and Co., of Stratford. Mr. George Wade, of Chelsea, has erected the cottages for workmen on the southern side of the works. Mr. James McKie, Assoc.M.Inst.C.E., acted as resident engineer. Each set of pumps, with its engine, can be worked separately, one being sufficient for dry weather; the third set is kept in reserve in case of accident. Space is provided for two more sets of engines and pumps. We may mention that the effluents exhibited were very clear and satisfactory; the station buildings and tanks have been carried out with much care in a liberal manner; the group of buildings, with its ornamental square chimney shaft from boiler house, presenting a far from unsightly range of red-brick structures, with gabled ends and rusticated doorways and angle quoins. Mr. Ritchie, in his speech, congratulated the local authorities on the successful completion of the works.

THE NUNHEAD AND SHORTLANDS RAILWAY.

A VISIT was paid on Wednesday week by the Society of Engineers to the Nunhead and Shortlands Railway and the Crystal Palace District Gas Company's works.

The line, now in course of construction, commences by a junction with the L. C. and D. Railway Company's main line at Shortlands station and terminates by a junction with their Greenwich branch at Nunhead Junction. The object is to develop some of the estates through which it passes, and an alternative route for their main line traffic into the Metropolis *viâ* Nunhead Junction and the South London Line. For a suburban railway, the country passed through is very open, the only building property actually taken being at Catford, yet the number of bridges is considerable, averaging about five per mile; this is mainly due to the number of bridges erected for the accommodation of the landowners in laying out their estates. All the bridges will be of an ornamental character, and

the slopes of the cuttings and embankments will be planted with shrubs and trees.

Amongst the works are included three bridges over existing railways, two short brick viaducts, and a retaining wall in Catford, besides other public road and accommodation bridges. The bridge over the South-Eastern Railway, near Catford, will consist of two N-truss girders, with a skew span of 113ft. each, with underhung cross girders and rail-bearers. That over the London, Brighton, and South Coast Railway, at Brockley, will consist of three girders, 100ft. span each, of a type similar to those just mentioned, the centre one being between the two lines of rails. The floor in this case will consist, as the headway is limited, of troughs, built up with angle bars and plates.

In the case of bridges carrying roads over the railway, the superstructure consists of girders and jack arches, except in three cases where headway is limited, and longitudinal-built trough flooring has been used, supported by a transverse girder on columns in the six-foot way.

In the case of road bridges under the railway, trough flooring will be extensively used, on account of the limited headway in most cases. This construction also enables the floor to be made perfectly watertight.

Steel is being used for the bridge work throughout, the columns in the roadways and ornamental work being of cast iron. There are to be five stations on the line, in addition to those already existing at Shortlands and Nunhead. The work is being carried out under the superintendence of Mr. John Wolfe Barry, the company's engineer, and Messrs. Lucas and Aird are the contractors.

The adjoining works of the Crystal Palace District Gas Company were afterwards inspected. A new gasholder is in course of construction, which will consist of three lifts, the inner one being 163ft. 6in. diameter, and each lift being 40ft. 6in. high; the total capacity of this holder will be 2,500,000c.ft. The present gasholders, of which there are five, have a total storage capacity of 3,825,000c.ft.

THE VICTORIAN REGISTRATION OF ARCHITECTS BILL.

THE Royal Victorian Institute of Architects —acting, alas! how differently from the London R.I.B.A.—having invited those practitioners in architecture who are neither members of their Institute nor of the Architectural and Engineering Association to meet in the Institute rooms, Collins-street, Melbourne, on Thursday evening, August 13, the conference took place accordingly, the object of it being to discuss the proposed Draft Bill for the Registration of Architects. There were present several members of the Registration Committee of the R.V.I.A., the Registration delegates of the A. and E. Association, and about fifty outside architects. Mr. G. C. Inskip, F.R.I.B.A., President of the Institute, occupied the chair, and in opening the proceedings strongly supported the Bill, which, he said, had been in principle before the Victorian Institute for two years, and which had recently been altered and amended in accordance with suggestions received from architects. It was not so much for the benefit of the architect as for the advantage of the whole community, that registration was necessary; and seeing that the dentists, the veterinary surgeons, and the surveyors were all registered or licensed, it was about time that the architects were protected also, or rather that the public should be protected from those who unjustifiably called themselves architects. The Bill had been carefully framed, so as not to interfere with any existing rights. The Institute had invited the outside architects to help them with the measure, because it was to the advantage of the whole body of practitioners that it should become law. Mr. A. M. Henderson, one of the Registration Committee, having explained the principles and objects of the Bill, Mr. E. G. Ovey, as an architect not connected with either the Victorian Institute or the Association, moved "That it is desirable that a Bill for the registration of architects should be placed before Parliament as early as possible, such Bill to conserve all existing interests." This was seconded by Mr. Wells, and was strongly supported by Mr. Duguid, who remarked that had he merely looked at this Bill from a personal standpoint, he should have felt inclined to hold aloof from it, because the professional man who had qualified himself by study and practice had nothing to fear in competition with the amateur. But the matter concerned the public more deeply than the profession. He was glad to see that this latest Bill had enlarged the scope of registration, as there were many men who had entered the profession through by-ways, and were ornaments to it. Some of these men, owing to the difficulties which they had surmounted, were better architects than the curled youths whose fathers had been able to pay heavy premiums. Mr. Craven considered it, in the first place, a weakness in the Bill that it provided no protection to the public against the jerry builder. If the Bill were passed, there would be nothing to prevent people who were not architects going on under some other name and building bad houses. It was a well-known fact that builders, contractors, &c., designed houses and acted as architects. The Bill would not stop them. Secondly, no provision was made allowing an engineer engaged in the construction of a railway to design the station buildings, &c., for it. He would support the general principles of the Bill, and thought it a move in the right direction. The motion was carried with only two dissentients. The Bill was then read by Mr. Billing, hon. secretary of the Victorian Institute, and discussed clause by clause. The chief differences of opinion arose over clause 2, section 4, which provides for the registration of existing practitioners.

Mr. Little said they would defeat their own purpose if this were passed as printed, because it opened the door for any jerry builder who had been practising three years as an architect to become registered. Something similar had happened under the Victorian Dentists Act, the consequence being that instead of 70 registered dentists, which was about the number of properly-qualified men, there were at least 400. Mr. Billing directed attention to the next clause, which gave the general council power to exclude the jerry builder. Mr. Craven thought that the person who had been *bonâ fide* engaged in practice as an architect for two years should be eligible for registration. Clause 2 stipulated three years. No suggestions of any importance were made with regard to the remainder of the Bill. The meeting then proceeded to the election of five outside architects to co-operate with the registration committee in giving an improved shape to the Bill. Messrs. Marsden, Craven, Duguid, Little, and De Garis were appointed.

ARCHITECTURE IN THE ARGENTINE REPUBLIC.

[SEE ILLUSTRATIONS.]

CHURCH, PARSONAGE, AND HALL, ROSARIO DE STA. FE.

THIS church is designed for the English, Spanish, and German congregations of the Methodist Episcopal Church of North America in Rosario. The main front here illustrated faces the "Gran Boulevard." The hall is placed behind the parsonage. The lower story, it will be noticed, is plastered, while the upper is of face brickwork. The former is the universal mode of finishing brickwork in Argentina, on account of the rough bricks that are used, and bad quality. They are 12in. long, 6in. wide, and 2½in. thick. The brickwork there is done by Italians, and it is difficult to obtain from them good face-work and proper bonding at the same time. The effect is good when exceptional care has been taken, owing to the thin bricks. The style of the building is a simple treatment of Romanesque, with flat-pitched roofs and projecting eaves. It is proposed to construct the great wheel window with hard wood of the country, and well protected with white-lead paint; also the brackets of the tympanum and eaves, with the panels picked out with bright colours.

The windows of the church are all plain, without tracery, except the wheel window before mentioned, and glazed with plain glass of small squares, with coloured borders only, those on the sunny side to be provided with curtain blinds of green shade. The roofs are of slate from France. The roofs are of very simple construction. That of the church is of the ordinary queen-post type, boarded at tie-beam level, with centre portion between the posts open and decorated, giving greater height to the interior and simplifying the means of ventilation, and at the same time preserving an air-space between ceiling and outer roof, so necessary in hot climates. The roof over the hall to be similar in type; the queen-posts carried down to floor-level. Th roof is of very light construction, no timber bei more than 6in. by 3in.; this roof to be cover with corrugated iron.

In the church, provision is made for futu galleries over entrances and in the transep behind tower; the latter will contain the stai case for both galleries. The entrance to hall under the "belvedere" of parsonage, with cloa rooms adjoining. Wherever possible, balconi are provided in the fronts of all two-stori houses in Argentina, and the great difficulty the architect is to prevent them from having crushing effect on the building, and to keep the shallow, as the natives of the country spe much time in the open air; they also requi balconies on the ground floor, however sma when it is possible to get them. The windo are always French casements, hung to op inside, and provided with Persiana shutters ope ing outside, and all the openings and doorwa as large as possible for the free circulation of a The rooms of dwelling-houses are usually ve lofty; these are only 15ft. 6in. from floor floor. This presents a difficulty in giving pro scale to a domestic building. The hall a parsonage are estimated to cost 11,000dols. gol

SUBURBAN HOUSES.

These are a pair of semi-detached houses English residents to be erected outside Rosar facing what is known as the English Plaza, t property of the English Athletic Club; th have also a neat pavilion on the ground. T type of house, with a small garden in front, h not yet been adopted. The style of these somewhat Italian, with flat projecting ro covered with French tiles, giving deep shado at the eaves, treated in the same manner as the parsonage. Here the walls generally plastered and picked out in panels, with br dressings, pilasters, &c., giving relief to plaster surface, and giving colour. It is p posed to use machine-made bricks; these made only of the English size. There is a gall running the whole length of the front bracke out from the wall; this long line, with shadow, assists in counteracting the great hei of the floors, as noticed before. In the to there are three floors, the first floor being reac off the half-landing of the staircase; the hous to be fitted up with water services, and all latest sanitary appliances; the drains to be tal to a sump-hole or pit at the back of garden.

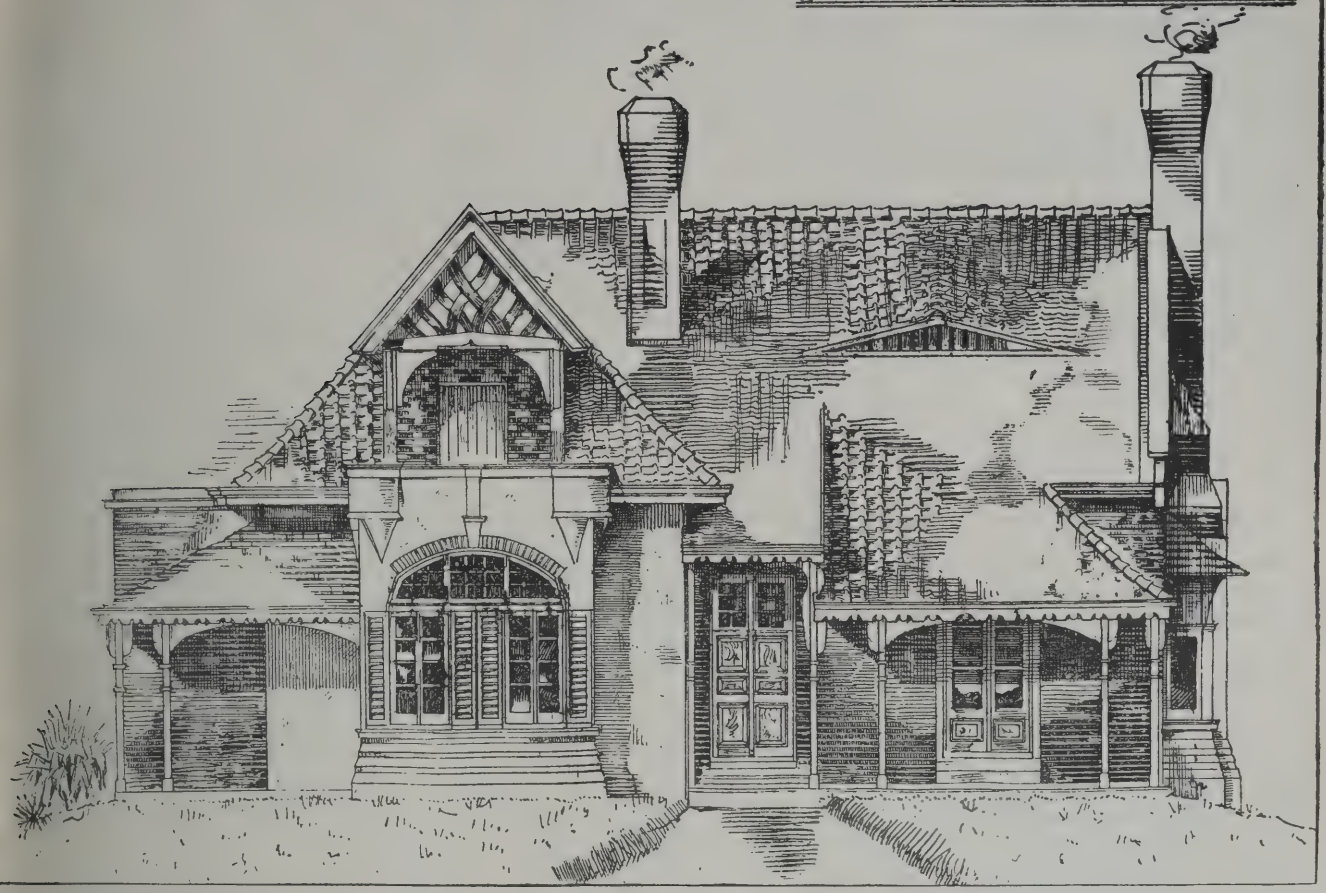
The remaining designs are for residen known as "Quintas," outside of the town, only of one story in height, quite detach They are planned specially for the clim adapting them to the requirements of Eng customs. In the centre is a wide hall, open airy as possible; on one side are the bedroo on the other the living and reception roo the patio behind pertaining somewhat of a qu rangle, with buildings on three sides only. one side of the patio and the back are ran the kitchen offices and servants' accommodati with means of communication between dining-room and the kitchen for the wi months. The usual custom for roofing this c of house is by iron joisting, with arches betwe covered with two rows of bricks, laid diagona and paved with baldoza tiles; one of th illustrated is so roofed. The great difficult to keep them watertight, owing to the c traction and expansion of the ironwork and baldoza tiles, from the great heat of the sum sun. The best roof of the country is, perh the tile roof—the tiles are imported from Fra principally Marseilles; the baldoza tiles come from the South of France. It is alw necessary to provide a balcony for shade du the hot months of the year. The estimates these ranged between 4,400dols. gold 5,000dols. gold.

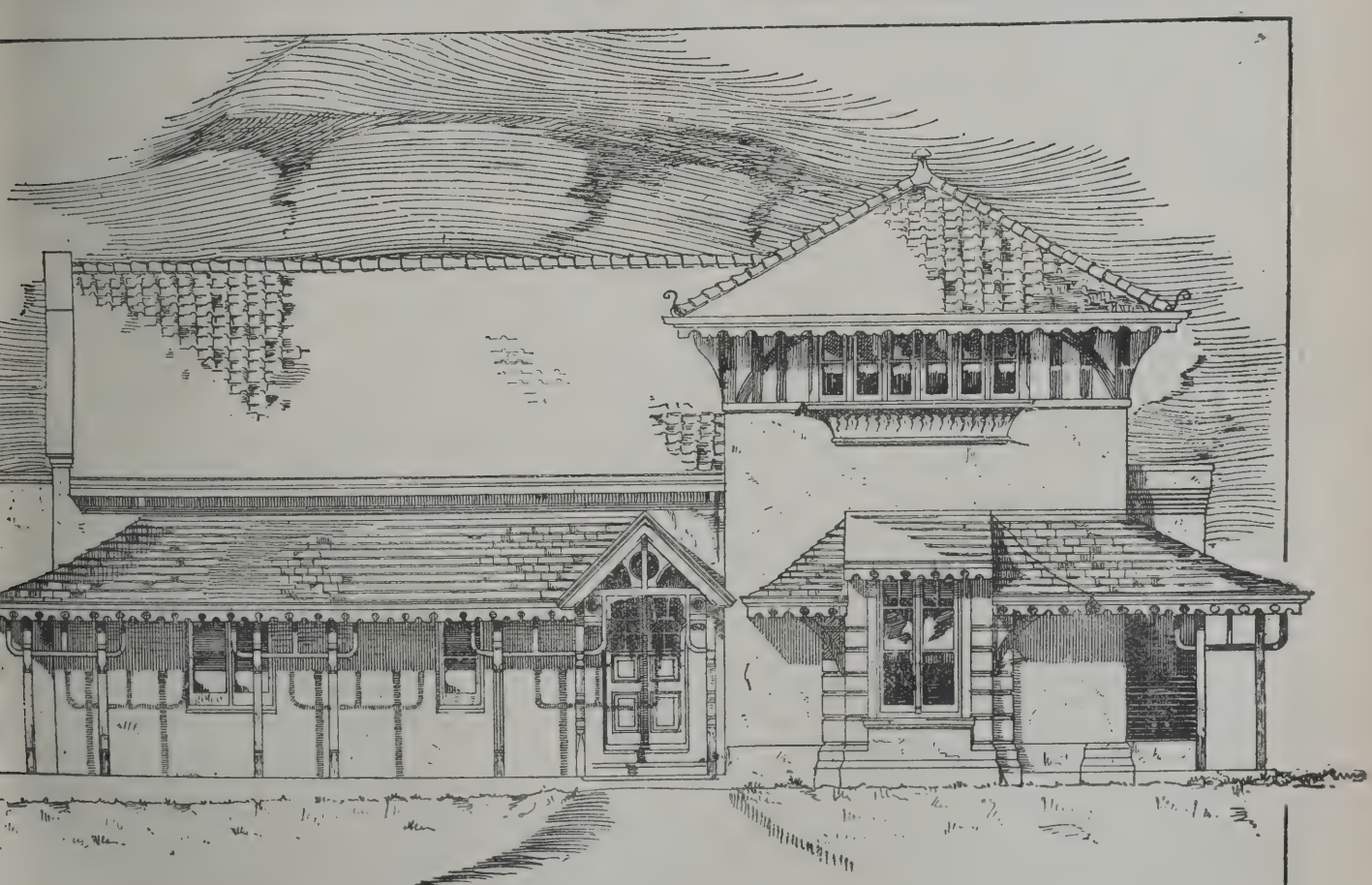
The formal reopening of the Abbey Churc Selby, which has been restored under the direct of Mr. J. Oldrid Scott, is fixed for Tuesday mo ing, October 13.

Mr. Robert Stannard, C.E., who died last w at Brighton, was for many years in the emp ment in a confidential capacity of Messrs. L and Aird, and during the construction of the and Barnsley Railway had the entire su vision of the Howden section, which exte from South Cave to Heck. The deceased had t sons and four daughters, one of the former ma ing the popular writer so well known as J Strange Winter, and one of the latter is the of Mr. G. A. Sala.

ROSARIO de SANTA-FÉ.

Juan Curry. Arquitecto.





CASAS QUINTAS en FISHERTON. Juan Curry · Arquitecto ·

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ILLUSTRATIONS.

THE NEW BOROUGH MARKETS, HALIFAX.—BISHOPSGATE SCHOOL FOR GIRLS.—INTERIOR OF MR. T. E. COLLCUTT'S DESIGN FOR THE NEW SOUTH KENSINGTON MUSEUM BUILDINGS.—THE MANOR HOUSE, ARRETON, ISLE OF WIGHT.—COTTAGE HOMES, WEDNESFIELD, NEAR WOLVERHAMPTON.—BUILDINGS AT ROSARIO, SANTA FE.

Our Illustrations.

HALIFAX IMPROVEMENT SCHEME.

These buildings, the subject of our illustration to-day, will effect a remodelling of the centre of the town of Halifax, the scheme being associated with the widening of the adjacent streets and other improvements. Markets in the North of England are important municipal buildings, and as a feature of everyday life attain a more appreciative value than in the Metropolis. The scheme illustrated comprises in the general market 214 stalls and 45 butchers' and other shops; in the fish market, 14 stalls and 15 shops. The arcades will provide 16 shops, and to the several streets there will be 28 shops with residences over. The corporation have decided to proceed with the entire scheme at a cost of £40,000. The architects are Messrs. Leeming and Leeming, Victoria House, 117, Victoria-street, Westminster.

BISHOPSGATE GIRLS' SCHOOL.

The buildings shown in our illustration have been erected for the trustees on a site in Spital-square, Bishopsgate, E.C., in place of the old buildings in Skinner-street and Primrose-street, demolished by the Great Eastern Railway Company. The school building has accommodation for 550 pupils, and is planned to meet all the requirements of modern middle-class education, including an art school, music school, with separate and sound-proof practice-rooms, cooking kitchen, &c. All the floors and staircases are of fireproof construction, classrooms are large and lofty, and the floor space of each is larger in area than that demanded by the Education Department. Fireplaces are provided with ventilating grates in all classrooms and cloak-rooms, and in addition there is a complete system of heating by hot water. Vitiated air is drawn from each room through separate trunks, and carried up to extractors in roofs. Care has been bestowed on the drainage and sanitary appliances, all traps and pipes are ventilated, and the risk from foul air accumulating reduced to a minimum. The chapel and clergy-house, although used in conjunction with the school buildings, are not a part of the same foundation, and were erected for the rector of St. Botolph, Bishopsgate, the Rev. Prebendary Rogers, who is also chairman of the school trustees. The buildings externally have been faced with Lawrance's red bricks, and terracotta of a buff colour has been largely used in all dressings and ornamental features of the design. The roofs are covered with green slates. The architecture is founded on the collegiate buildings of the Jacobean period. Our illustration is taken from the original exhibited in the Royal Academy of this year; but in the execution the design has been somewhat modified. The total cost of the buildings is about £18,000. The contractors for the work were Messrs. Woodward and Co., of Finsbury, Mr. P. J. King being clerk of works. The terra-cotta is by Messrs. Cliff, and the ornamental wrought ironwork is by Messrs. Richardson, Ellson, and Co. The buildings have been designed by Messrs. T. Chatfeild Clarke and Son, who were successful in a limited competition.

SOUTH KENSINGTON MUSEUM COMPETITION.

We complete our series of the designs submitted in this competition this week by giving the Interior of the Central Hall of Mr. T. E. Colcutt's design. We commenced our illustrations of this competition in our issue of August 7, and have given one or more each week since. Readers who desire to preserve the series and have missed any of the numbers are respectfully advised to do so at once, as the demand has been considerable, and they will soon be out of print.

THE MANOR HOUSE, ARRETON, ISLE OF WIGHT.

Mr. Percy G. Stone, F.R.I.B.A., has just issued to subscribers the second part of his interesting work on the ancient buildings of the Isle of Wight,* and we have to-day published an illustration, with the author's permission, from the drawings which this folio contains. The part is chiefly devoted to the domestic work of the East Medine, with copious illustrations, plans, and marginal diagrams, some few being reproductions of old engravings and early views of historical importance. The series commences with Appuldurcombe, a big Classical mansion erected in the early days of the last century. Arreton, the subject of our lithographic plate, comes next, then Barton Manor; Bridge Court, near Godshill; Great Budbridge, Haseley Manor, Merston Manor, Nunwell House, Stenbury Manor, and Yaverland Manor. The volume closes with descriptive notes and copious references in connection with the ecclesiastical buildings, followed by a similar treatment of the manors and houses of the East Medine. Turning now to the subject which we print as a representative sample, we take the following particulars from the account of Arreton Manor House given by Mr. Stone. Little is known of the early history of Arreton beyond its connection with Quar Abbey, to which it was given by Baldwin de Redvers. In the time of the Confessor it was held by the King. The endowment of Arreton remained in the possession of the Abbey of Quar till the Dissolution, when it fell, with the rest of the monastic possessions, into the hands of the Crown, in whose tenure it seems to have been till the reign of James I., when it was purchased by Sir Levinus Bennet. In the next generation it changed hands, being bought by Thomas Lord Culpeper, Governor of the Island from 1660 to 1667, whose daughter and heiress, marrying with Lord Fairfax, of Leeds Castle in Kent, brought it into the Wykeham-Martin family, who still hold it. The present house, pleasantly situated on rising ground at the foot of Arreton Down, was probably rebuilt by Sir Levinus Bennet. It is of the usual Jacobean type, with two projecting wings and a central porch, over the entrance of which is cut the date 1639. This porch, of which we give a detail, seems to have been an after addition, made probably when the porch-building mania set in. The inner door is apparently original, and has a somewhat quaint knocker of simple form in iron, while the oak beams forming the ceiling of the porch are moulded and stop-chamfered. The west wing is a modern addition of recent years. The woodwork in the drawing-room, the usual parlour of the period, adjoining the great hall, is, of its kind, excellent, though it has suffered somewhat by "doing up," some of the material being brought from elsewhere, presumably, in the house. The pediment on the screen by the door, a good piece of Early Jacobean work, has been sawn in two to serve its present purpose, and in refixing turned upside down, and a pilaster, surmounted by a typical figure, is planted on the panelling of the east wall of the room. The panelling is good, but the chimney-piece is the glory of the apartment. It is well proportioned, and elaborately worked with more refinement of *technique* than is usually found in the work of the period. The bedroom over also contains a somewhat later chimney-piece v of note, with a Flemish carving representi "Offering up of Isaac." In the hall the jambs and head of the original fireplac remain. To the east of the house is a 16th- century *columbarium*, entered by a four-c doorway, while on the south stands a fine with a roof worthy of notice. Adjoinir churchyard is a Jacobean cottage of a su type, probably a farm-bailiff's dwelling, nail-studded door and iron knocker still re ing *in situ*. Most of the plates in the bo drawn by the author, but we note some fro hands of Messrs. Bolton, H. P. Burke Dow and Maurice B. Adams.

* The Architectural Antiquities of the Isle of Wight from the 11th to the 17th centuries. By Percy G. Stone, architect, 16, Great Marlborough-street, London.

COTTAGE HOMES, WEDNESFIELD, NEAR WOL HAMPTON.

We give in this number a general and views and various plans of the above h which have been erected at Wednesfield, fo Wolverhampton Poor Law Guardians, fo purpose of removing the children from the house, so that they may grow up free fro contaminating influence of the tramp war with a better prospect of becoming useful bers of society. The homes have been c out from the designs and under the superi dence of Mr. Geo. H. Stanger, architect, W hampton, whose plans were selected in competition. The original design was fo homes, each to accommodate thirty childre of these, only eight have, at present, been Before the children are admitted to the h they are detained two or three weeks i probationary wards of the lodge, in or see that they are free from infectious dis Foster parents have charge of each hom wife attending to the household duties, the husband acts as an industrial trainer. this training, they have about twenty ac land that is cultivated by the boys, h which, they have a block of workshops taining tailors', shoemakers', tinmen's carpenters' shops, also a bakehouse, whe the bread used in the establishment, and workhouse, is made. The homes and buildings are sufficiently explained by plans, but at the back of the work a swimming-bath has been built. schools are divided into separate d ments for boys, girls, and infants, with rooms for each, the main schoolrooms h glazed screens, thus making additional rooms when required. A portion of the grounds are covered in to be used in wet we Messrs. Bradney and Co., of Wolverhan have erected the whole of the buildings bricks made upon the site, with Stanton strings and dressings, the roofs being co with red Staffordshire tiles.

BUILDINGS AT ROSARIO, SANTA FE.

(For description and further illustratio page 460.)

The Glasgow town council, at their meet Monday, received a report from Mr. G. M ninghame, C.E., of Edinburgh, on the condi Glasgow Bridge, in which he recommended t delay should take place in applying for l mentary powers to reconstruct the bridge. I Convener Mason, in presenting the report, that the foundations of the bridge were in an but a satisfactory state, and that at the soo least two years must elapse before a tem structure could be erected. The report was ad and it was decided to adjourn for a fortnig consideration of the desirability of advertisi competitive plans for a new bridge.

A serious accident occurred on Wednesday at the new swimming-bath at Stafford, the opening of which had been fixed to take pl the following day. The water had been turn for the first time, the mayor and several me of the town council being present, and th swimming-bath was filled to overflowing, the wall of the bath burst. Fortunately th dent happened on the side nearest the rive the escaping water did consequently little da The baths have been erected from designs borough surveyor. The Corporation staff c the site and put in the foundations, and then i tenders for the different branches of the work Bromage, of Longton, contracted for the bu work; the amount of his contract being £ The engineering part of the contract amoun £1,025. The swimming-bath is 91ft. by 41ft. in the clear. The bath itself is 80ft. long wide, and from 3¾ft. to 6½ft. in depth, with face area of 2,640 superficial feet, and con 80,437 gallons of water.

WAYSIDE NOTES.

EINVIGORATED by a two months' re- cess, our County Councillors have resumed ness at Spring-gardens. Taking up the ad of argument summarily dropped at the mencement of the holidays, the councillors proceeded with the consideration of the ral improvement schemes for Metropolitan ways. With the recommendation of the rovements Committee before them—to the t that the most pressing improvements are: Sandys-row to Bishopsgate; (2) Boziers- t, Tottenham-court-road; (3) the widening he Strand at Holywell-street; and (4) the ning of Nine Elms-lane, Battersea—the ncil engaged in much debate at Tuesday's ting. Debate, apparently, void of much l fruit, if we may judge by the resulting lution, that only the Sandys-row scheme be ed to, and that the other proposed improve- ts be adjourned.

here is some talk about the Council's not doing its whole heart this, that, and the other, use, forsooth, their term of office shortly res. Councillors might well call to mind that sion, in the American States, when a certain raordinary darkness settled upon the earth, and ed a panic to take hold of the members of the embly then sitting, who adjudged that the ck of Doom would shortly be heard. Where- n a certain serenely-minded Quaker, con- ring that, should the Last Day be really at d, he had best be found at the post of duty, in his place, and moved that "candles be ught and business proceeded with." I should fer to see the County Council call for candles the darkness thickens, and proceed heart and l with business, leaving matters at the expira- n of their term to the care of Providence. One en feels tempted to neglect a piece of work ause of some change in the details thereof— is drawing a plan, and having finished nking-in" there remains a quarter of an hour o before we must start to catch a train. Shall waste the whole time in twiddling finger and mb because it is not "worth while to com- nce the process of colouring"? I fancy not. ter that there should be an honest stain where have had to leave a breadth of tinting, than t we should have squandered the irrevocable nutes.

A useful work was inaugurated on Monday , when the President of the Local Govern- nt Board opened the new sewage works at rtlake, part of the Richmond Main Sewerage eme, to avoid the pollution of the Thames. e principle adopted by the engineer to the lertaking is the one that seems to have wered the most practically for drainage on modern system. The sewage is treated by ious processes, and at last the effluent water s off comparatively pure. The "sludge" is ssed into marketable manure-cakes, and thus waste which the political economist deplores the ordinary system of free-running sewer- uths is prevented. It is said that the new hmond works have been running now for a tnight with perfectly satisfactory results.

Mr. Ritchie's speech subsequent to the in- gural ceremony was interesting and instructive, are all the remarks of the able President of the cal Government Board. Speaking of negligent l dilatory local authorities, Mr. Ritchie said t they did not realise their great responsibility h respect to the drainage and water-supply, l pointed out, as a fact not generally known, t as the law at present stands, any number of epayers could, if they considered that the al authority had failed to provide proper inage and water-supply, complain to the cal Government Board, whose duty it would to make inquiry, and if the allegation was nd correct, to take steps to compel the local hority to do its duty. It is evident, however, Mr. Ritchie pointed out, that people are too rt to make use of this power, as it is rarely nd to be utilised.

The *Standard* thinks that at present the spect of an early solution of the much-vexed estion of the future of the London water- pply does not look very brilliant. If the ution is to be some total revolution in methods, h as the bringing a volume of water from tant lakes, &c., then certainly the out- k is not brilliant, and the less so, because the big Midland cities are grasping old Father Time's forelock with hearty good-will, and getting before us in the way of water supply, as I hinted some time back. Thus, the London County Council's engineer has a scheme for bringing water from the sources of the Elan and the Claerwan, in the counties of Radnor and Cardigan, at a cost of nine millions sterling, for two hundred and thirty million gallons daily; while at the same time the Corporation of Birmingham, advised by Sir Robert Rawlinson, wish also to take a supply of water from these sources, and are preparing to go to Parliament next session with a Bill authorising them to make the necessary arrangements.

Sir Thomas Farrer, vice-chairman of the London County Council, has followed Sir John Lubbock's lead, and resigned this post on the Council. Sir Thomas Farrer's presence in the Council added some colour to the pretensions of that body to take to itself the water supply. For Sir Thomas has made most of the ascertained facts *re* London water-supply question his own, and, in a report that he has submitted to the Council, much of interest concerning the question may be found. Rather an alarmist report in a sense, yet true withal, as I should say, while at the same time believing that the County Council is not the proper "water authority" of the future. Already, says the report, the Thames is drawn upon to excess, and the Lea can yield no more than it is giving; wells are not to be relied upon, and are subject to local claims. The report is less rich in practical suggestions, such, at any rate, as would suggest themselves to our own mind. "Buy up the old companies" is the theme of the argument. For what good? If this is to constitute the whole reformation of London's water supply, then the reformation will assuredly be in name only. For my own part, I believe that the London Water Companies have done all they can do, on their own lines, and as well, or better, than other companies could have managed. I fail to see where the County Council would improve on the old lines, and believe that until the Council comes forward with a bolder scheme, and one more evidently likely to constitute a change for the better, the London public will at heart hold a similar view.

Sir Matthew White Ridley, chairman of the recent Select Committee that considered the question of various Water Bills affecting London, was occupied one day towards the end of last week with a novel ceremonial at Blackpool. Blackpool was *en fête* on Friday, on the occasion of the laying of the foundation stone of the "Eiffel" Tower, wherewith the "Blackpudlians" are to gratify themselves and astonish their visitors. The ceremony was duly performed by Sir Matthew as member for the Blackpool Division, amid general rejoicings, a procession, and subsequent banquet. But as the justices in sessions assembled have refused a license to the building, I fear the growth heavenward of Messrs. Maxwell and Tuke's ambitious scheme may be checked for a season. One may "call 'spirits' from the vasty deep" or the entrance to the lift, "but will they come?" Ay, there's the rub. If the Blackpudlians and their towrow visitors call in vain for spirits, a steel tower, be it 500ft. in height, will have no attractions.

St. Alban's Church, Teddington, is to be the largest parish church in the diocese of London. Already, it is said, the church has cost £30,000, and a lady having given money towards the cost of further works, I read that the completion of the building will leave it the pre-eminence stated above. This for statistically-minded readers.

Last Saturday saw the reconsecration of the parish church of St. Mary, Stoke Newington, which has been restored at a cost of over a thousand pounds. The Bishop of Bedford, in performing the ceremonial, congratulated the rector and congregation of St. Mary's upon a thorough restoration being effected, while the old and distinctive features of the church had been retained. It would be well if this could be said on every occasion of reopening restored churches.

I was rather surprised to learn that there were only thirteen competitors in the Cork Court-house Competition; but even in respect of numbers responding to advertisements, the vagaries of the competition world are strange and unaccountable. Perhaps the fact of the competition being for a building in Ireland may account for something—not that there is any objection to an Irish competition *per se*; but I suppose one naturally feels to have more chance the nearer one is to the place where the building is required. Otherwise this competition promised well, and there were liberal premiums offered. Then, perhaps, the building itself did not appear attractive to the average competing architect, who will have his little likes and dislikes. Some kind of competitions are no more attractive to the architect than a grub to the fish fond of flies; into others competitors are drawn like wasps into judiciously-filled lemonade bottles, and had I the mood on me, an audience powerless to escape the infliction, and a well-filled churchwarden pipe, I might, peradventure, moralise thereon to some extent.

To-night the president and committee of the Architectural Association will be glad to see any member who should be passing the Westminster Town Hall about eight o'clock, and happen to have his dress clothes in his waistcoat pocket.

GOTH.

CHIPS.

The Free Methodist chapel report just circulated shows seventeen chapels built during the year at a cost of over £21,000, and five schools at a cost of £9,366. In addition 92 chapels were enlarged or improved at a cost of £15,542.

Miss Marjory Shanks Schaw, of Park-circus, Glasgow, has offered £40,000 for the purpose of erecting and endowing a convalescent home in connection with the Glasgow Royal Infirmary, which will be erected at Bearsden.

On Saturday the Bishop of Salford laid the memorial stone of the new sanctuary in connection with the Church of St. Mary of the Immaculate Conception, Failsworth. The contract for the new building has been let for £1,240.

The vicar and churchwardens of Teddington have accepted an offer of £1,000 from a lady towards the building fund of the parish church of St. Alban. St. Alban's Church has already cost £30,000, and when completed will, it is said, be the largest parish church in the diocese of London.

The Archbishop of York visited Malton on Monday, and conducted a Benediction Service in connection with three memorial windows which have just been placed in the Priory Church at Old Malton, by members of the Kinnear family, in memory of deceased relatives. They were designed by Mr. Temple Moore, of London.

A monument is to be erected to Luther at Eisenach, and will be unveiled in 1893. Among the contributors to the memorial is the German Emperor.

The annual excursion of the Hawick Archæological Society took place on Saturday, when a company numbering 170 enjoyed a trip to Hexham and Chollerford. At the former town the party were conducted through the venerable abbey by Mr. Alexander D. Murray, who read a paper on "Hexham and Hexham Abbey." He denied that Hexham had been an important Roman station, supporting the theory that the inscribed and sculptured Roman stones had been obtained from the Roman station at Corbridge. At Chollerford the visitors were conducted over the extensive Roman station, which had been excavated by the late proprietors. Further excavations are being made by Mr. Clayton. The camp covers an area of 5¼ acres, and the walls are 5ft. thick.

This year being the 21st anniversary of the Liverpool Autumn Exhibition, Mr. Charles W. Jones has purchased and presented to the permanent collection the picture of "The Founder of English Astronomy," Jeremiah Horrocks, by Eyre Crowe, A.R.A., as a coming of age gift. The picture was a prominent feature in Gallery VI. at the recent Academy exhibition, and now finds an appropriate home in Lancashire.

The schools attached to the parish church of St. Helen's, Lancs., were reopened on Monday after extensive alterations. The work has cost about £700, and has been carried out by Mr. Rotheram, contractor, Boundary-road, Liverpool.

About twenty members of the York Architectural Association were conveyed last week by steam launch to Thorpe Head, and walked thence to Whixley. They were received at the church by the vicar, who conducted them over the edifice. The church is for the most part in the Early Decorated style, but traces of Norman work are to be found in the chancel. The fabric underwent restoration during the years 1860-2.

PROYECTOS

Y CASAS

en ROSARIO

JUAN CURELY



DOS CASAS QUINTAS (JUNTAS)



CASA QUINTA EN LOS SUBURBIOS

IGLESIA NUESTRA SEÑORA DEL ROSARIO Y CASA DE CURA



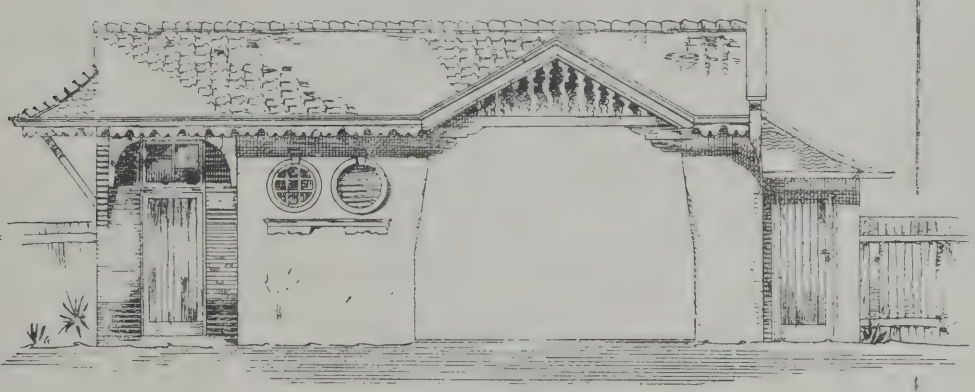
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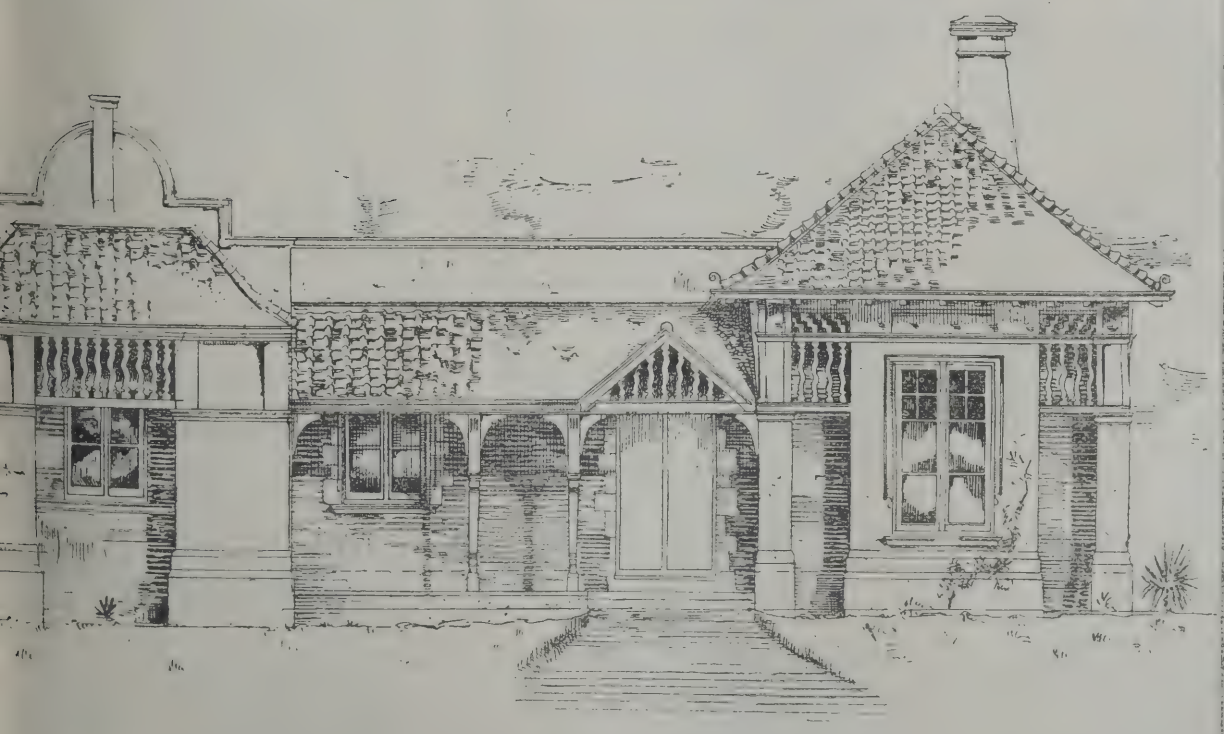
ertion

de Santa-Fé

Juan Curry

Arquitecto.





PRICES.—XVIII.

(All Prices Include Profit).

CARPENTER (*continued*).

		£	s.	d.
Labour only (for ordinary work a fuller list will follow Joiner).				
Cutting and fixing only to fir plates, trimmers, ground joists and sleepers	per foot cube	0	0	5
Ditto and framing joists and trimmers	ditto	0	0	7
Ditto ditto all joists haunched	ditto	0	0	9
Ditto ditto partitions	ditto	0	0	8
Ditto ditto ditto all quarters mortised and tenoned	ditto	0	0	10
Ditto ditto trussed ditto	ditto	0	1	0
Ditto ditto to roofs	ditto	0	0	8
Ditto ditto to trusses	ditto	0	0	10
Ditto ditto ditto heavy	ditto	0	1	0
Ditto fir bressumers	ditto	0	0	7
Ditto ditto reversed and bolted	ditto	0	0	9
Ditto ceiling joists	ditto	0	0	1
(All straps and bolts extra. Hips and valleys cubed in with rafters, &c. Cutting rafter feet included except where shaped to pattern.)				
Fixing ridge and other rolls	per foot run	0	0	0¾
Ditto tilting fillet	ditto	0	0	0¼
Ditto eaves	ditto	0	0	0½
Ditto flashing board	ditto	0	0	0⅔
Gutters and bearers :—				
Fixing only	per foot super.	0	0	2
Ditto framed	ditto	0	0	3
Ditto ditto both ends	ditto	0	0	4
Ditto long drips	per foot run	0	0	1
Ditto short ditto	each	0	0	2
Ditto cesspools extra only	each	0	0	9
(For circular gutters add 50 per cent.)				
Bracketting :—				
To cornices and coves		0	0	2
Ditto circular		0	0	3
Ditto narrow		0	0	2
Ditto groined		0	0	4
Ditto round iron		0	0	2½
Ditto ditto add if bolted		0	0	3½
Bolts and holes extra, shop fronts		0	0	2½
Firring on joists to fall, not including cutting out	per foot run	0	0	0½
Herringbone strutting to 9in.	ditto	0	0	1¾
Ditto ditto to 11in.	ditto	0	0	1¾
Solid ditto, housed to 9in. or 11in.	ditto	0	0	4
(The joists are measured in, in both the foregoing items.)				
Fixing bolts under 12in.	each	0	0	2½
Ditto ditto over 12in.	per foot run	0	0	2
(Add for hard wood 50 per cent.)				
Fixing straps	per lb.	0	0	0¾
Ditto and letting in (bolts extra)	ditto	0	0	1
Ditto ditto small	ditto	0	0	1½
Ditto king heads	ditto	0	0	0¾
Ditto small ditto	ditto	0	0	1
Ditto shoes ditto small	ditto	0	0	1
Ditto ditto let in	ditto	0	0	1½
Battening walls or partitions for boarding, spiked to brickwork	per square	0	1	6
Ditto plugged and spiked	ditto	0	2	6
(The above are 18in. apart.)				
Ditto to roofs for slates	per 100ft. run	0	1	0
Fillet and boards for sound boarding	per square	0	7	0
Fillet only	per foot run	0	0	0½
Centring—				
Turning piece, 4½in. soffit	ditto	0	0	1
Centres for gauged arches ditto	ditto	0	0	2
Ditto ditto 9in. ditto	ditto	0	0	2½
Ditto ditto 14in. ditto	ditto	0	0	3
Notchings	ditto	0	0	2
Centres to brick trimmers	per foot super	0	0	3
Ditto to vaults	ditto	0	0	1½
Ditto to concrete floors	ditto	0	0	1¼
Rough boarding—				
¾in. to roofs, ordinary kind	per square	0	2	6
1in. ditto ditto	ditto	0	2	9
1¼in. ditto ditto	ditto	0	3	0
1½in. ditto ditto	ditto	0	3	3
Add for circular 50 per cent.				
Ditto for quick 100 per cent.				
Ditto, if saw-cut on back 150 per cent.				
1in. of 2 thickness of ¾in. crossed diagonally		0	4	0
¾ by 7 weather boarding	per square	0	3	6
Ditto ditto wrought on job one side	ditto	0	7	0
¾ by 9 ditto	ditto	0	3	3
Ditto ditto ditto ditto	ditto	0	6	9
Match battens—				
¾in. on partitions	ditto	0	5	3
¾in. ditto	ditto	0	5	6
1in. ditto	ditto	0	5	9
1¼in. ditto	ditto	0	6	0
¼in. ditto walls, including battening	ditto	0	7	0
¾in. ditto ditto ditto	ditto	0	7	3
1in. ditto ditto ditto	ditto	0	7	6
1¼in. ditto ditto ditto	ditto	0	7	9
¼in. ditto ceilings	ditto	0	5	9
¾in. ditto ditto	ditto	0	6	0
1in. ditto ditto	ditto	0	6	3
1¼in. ditto ditto	ditto	0	6	6
Staff-headed angles	ditto	0	0	0¾
Rebates	ditto	0	0	1
(Casings to girders take at 50 per cent over ordinary.)				
Roofing felt—				
Laying only thin felt	per square	0	1	3
Ditto thick ditto	ditto	0	2	0
Sundry—				
Skirting grounds, including plugging	per 100ft. run	0	10	0
Ditto for partitions	ditto	0	4	0
Fixing skirtings on grounds, measured separate 7in.	per foot run	0	0	1
Ditto 9in.	ditto	0	0	1¼
Ditto 11in.	ditto	0	0	1¼
Ditto 14in. two pieces	ditto	0	0	2
Ditto pipe casings and 2 grounds narrow	ditto	0	0	2
Ditto ditto ordinary	per foot super.	0	0	3
Ditto screwed to open, extra	ditto	0	0	1

		£	s.	d.
Fixing skirtings on grounds—				
Ditto architraves 2	per foot run	0	0	0½
Ditto 3	ditto	0	0	0⅔
Ditto 4	ditto	0	0	0¾
Ditto 5	ditto	0	0	0¾
Ditto in 2 7	ditto	0	0	1
Where mitres are shot add 25 per cent.				
Ditto dado mouldings, plugged	per foot run	0	0	0¾
Ditto wide	ditto	0	0	1
7in. fascias for gutters, including mitres	ditto	0	0	1
9in. ditto ditto	ditto	0	0	1¼
11in. ditto ditto	ditto	0	0	1½
Floors. 1in. deal folding with splayed headings	per square	0	3	0
1¼in. ditto	ditto	0	3	3
1½in. ditto	ditto	0	3	6
1¾in. roughed ditto	ditto	0	3	3
1in. grooved and tongued ditto	ditto	0	4	6
1¼in. ditto ditto	ditto	0	4	9
1½in. ditto ditto	ditto	0	5	0
Ditto rough	ditto	0	4	9
Add if planed all over		0	2	6
(Rebated with loose tongues the same price as grooved and tongued.)				
Add for pitch pine 25 per cent.				
1in. oak floor, laid folding and unplaned	per square	0	5	0
1¼in. ditto ditto	ditto	0	6	0
1½in. ditto ditto	ditto	0	7	0
1in. wainscot ditto ditto, narrow width, and planed all over	ditto	0	9	0
1¼in. ditto ditto	ditto	0	9	6
Add for dowelling, fixing only		0	3	6
Fixing partitions	per foot super.	0	0	1¼
Ditto, spandrel with door	ditto	0	0	2
Add for floor or ceiling fillets to fix to, per ft. run		0	0	0½
Fixing window frames	each	0	1	3
Ditto door ditto	ditto	0	1	6
Ditto jamb linings to 6in. wide	ditto	0	1	3
Ditto ditto with loose stops	ditto	0	1	6
Ditto ditto to 11in. wide	ditto	0	1	6
Ditto ditto with stops	ditto	0	1	9
Ditto window nosings, including returning two ends	ditto	0	0	6
Ditto ditto boards and bearers, including notchings and return ends	ditto	0	1	0
Ditto ditto linings and soffites per foot run	ditto	0	0	1
Ditto ditto grooved and tongued	ditto	0	0	1¼
Ditto ditto all prepared	ditto	0	0	1
Add for groove or rebate if done on site	ditto	0	0	0½
Hanging doors, including fixing with	each	0	1	6
Ditto ditto large ditto	ditto	0	2	0
Fixing cupboards, 7ft. by 3ft., with one return end, and the shelf, top, and no back	ditto	0	7	6
Ditto ditto 7ft. by 4ft. or 5ft., and folding doors	ditto	0	10	0
Ditto deal w.c. and skirting, with flap and frame and holes	ditto	0	9	0
Ditto mahogany ditto	ditto	0	10	6
Ditto ditto bath top, including skirting and framing under	ditto	0	9	0
Ditto extra for door in framing	ditto	0	2	0
Ditto ditto each return end	ditto	0	2	6
Holes for taps, &c., extra	ditto	0	1	0
Cradling bath, extra	ditto	0	3	0
Fixing dresser 6ft. long, all prepared	ditto	0	5	0
Ditto ditto 7ft. ditto ditto	ditto	0	6	0
Ditto ditto 8ft. ditto ditto	ditto	0	7	0
Ditto cistern cover and hanging flap to rim, all prepared ready	ditto	0	3	6
Ditto 4ft. shelves with two bearers, all prepared ready	ditto	0	1	9
Ditto bearers plugged	ditto	0	2	3
Ditto rim locks	ditto	0	0	10
Ditto mortise locks	ditto	0	2	6
Ditto Kaye's locks	ditto	0	2	6
Ditto best lever mortise	ditto	0	3	0
Ditto ditto dead	ditto	0	2	0
Ditto w.c. latch	ditto	0	1	3
Ditto 8in. drawback lock	ditto	0	1	3
Ditto 10in. ditto	ditto	0	1	6
Ditto 3in. cupboard lock	ditto	0	0	9
Ditto 3in. lever ditto	ditto	0	1	0
Ditto ditto ditto cut	ditto	0	1	3
Ditto casement fasteners	ditto	0	0	9
Ditto sash fasteners	ditto	0	0	4
Ditto 1½in. brass knob	ditto	0	0	3
Ditto 3in., 4in., or 6in. barrel or tower bolts	ditto	0	0	4
Ditto 9in., 10in., or 12in. ditto ditto	ditto	0	0	6
Ditto brass door chains	ditto	0	0	9
Ditto ditto letter boxes and plates	ditto	0	2	6
Ditto 6in. cabin hooks	ditto	0	0	3
Ditto 12in. casement stay	ditto	0	0	4
Ditto brass flush bolts, per in.	ditto	0	0	1
Ditto small cupboard bolt	ditto	0	0	3
Ditto knocker	ditto	0	1	3
Ditto 1½ turnbuckle	ditto	0	0	6
Ditto 2½in. button	ditto	0	0	1
Ditto 2 rain-water pipes	per foot run	0	0	1
Ditto 3 ditto ditto	ditto	0	0	1½
Ditto 4 ditto ditto	ditto	0	0	2
Add for caulked joints	ditto	0	0	0½
Add for junctions	each	0	0	3
Fixing 4 ogee gutters, including angles, &c.	per foot run	0	0	1
Ditto 5 ditto ditto ditto	ditto	0	0	1½
Ditto 6 moulded ditto ditto	ditto	0	0	2
Ditto 7 ditto ditto ditto	ditto	0	0	2½
Ditto 8 ditto ditto ditto	ditto	0	0	2½
Ditto heads, extra	each	0	0	3
Ditto Shoes ditto	ditto	0	0	3

JOINER—FLOORS.

		£	s.	d.
¾ white batten floors, laid folding, with splayed headings	per square	0	19	0
Ditto yellow	ditto	1	0	0
Ditto ditto tongued and grooved	ditto	1	3	0
1in. white ditto laid folding	ditto	1	0	0
Ditto yellow ditto	ditto	1	1	0
Ditto tongued and grooved	ditto	1	4	0
1¼in. white laid folding	ditto	1	3	0
1¼in. yellow rough ditto	ditto	1	0	0
Yellow ditto	ditto	1	4	0
Ditto tongued and grooved	ditto	1	7	6

		£
1¼in. yellow rough	per square	1
Ditto ditto wrought, and laid folding	ditto	1
Ditto ditto tongued and grooved	ditto	1
Add if planed underside	ditto	0
Ditto ditto and beaded	ditto	0
Ditto if rebated and loose tongue	ditto	0
2in. rough floors of sawn yellow battens, laid folding with splayed headings	ditto	1
Ditto with edges shot	ditto	1
Ditto wrought on face	ditto	1
Ditto tongued and grooved	ditto	2
Ditto rebated and tongued	ditto	2
Add for iron tongues	ditto	0
Ditto galvanised ditto	ditto	0
1in. glued and mitred borders to hearth	each	0
1¼in. ditto ditto ditto	ditto	0
1¾in. ditto ditto ditto	ditto	0
2in. ditto ditto ditto	ditto	0
¾in. pitchpine, laid folding, &c.	per square	1
Ditto 4½ widths	ditto	1
Ditto ditto grooved and tongued	ditto	1
Ditto ditto ditto secret nailed	ditto	1
Add for ¾in. rough floor	ditto	0
Add if laid diagonally	ditto	0
Ditto for pitchpine ditto	ditto	0
Add if 1in. under floor	ditto	0
Add if dowelled (pitchpine)	ditto	0
1in. pitchpine batten floor	ditto	1
Ditto 4½ widths	ditto	1
Ditto ditto grooved and tongued	ditto	1
Ditto ditto secret nailed	ditto	2
Add if dowelled	ditto	0
1½ pitchpine batten floor	ditto	1
Ditto 4½in. widths	ditto	1
Ditto ditto grooved and tongued	ditto	2
Ditto ditto ditto secret nailed	ditto	2
Ditto ditto ditto ditto, and laid diagonally	ditto	2
¾in. pitchpine round hearth, border mitred	each	0
1in. ditto ditto ditto	ditto	0
1¼in. ditto ditto ditto	ditto	0
¾in. wainscot oak, laid folding	ditto	3
Ditto 4½ widths	ditto	3
Ditto grooved and tongued	ditto	4
Ditto secret nailed	ditto	4
Ditto dowelled only	ditto	4
1in. ditto laid folding	ditto	4
Ditto ditto narrow widths	ditto	4
Ditto ditto tongued and grooved	ditto	5
Ditto ditto ditto and secret nailed	ditto	5
1in. ditto laid folding	ditto	5
Ditto ditto narrow	ditto	5
Ditto ditto tongued and grooved	ditto	6
Ditto ditto ditto secret nailed	ditto	6
Add if scraped and prepared for polishing		0

PARQUET FLOORS.

Laid complete in quantities of not less 500ft. super., and within five miles of Ch Cross; all waste and cutting extra.

Where laid on old floors they must b planed, and the cost will depend on their c tion; nails have to be punched in for an ord floor. 1½d. per foot super. will carry a prof

		£
Pattern No. 1 ¼in. herringbone oak filling	per foot super.	0
No. 2 Ditto basket pattern	ditto	0
No. 2 Ditto mitred square and octagonal	ditto	0
No. 3 Ditto small laced pattern	ditto	0
No. 4 Ditto basket pattern	ditto	0
No. 5 Ditto framed cross	ditto	0
No. 6 Mitred square oak and walnut	ditto	0
No. 7 Ditto ditto inlaid	ditto	0
No. 8 Inlaid chequer oak and walnut	ditto	0
No. 1 1in. herringbone oak filling	ditto	0
No. 2 Ditto	ditto	0
No. 3 Ditto	ditto	0
No. 4 Ditto	ditto	0
No. 5 Ditto	ditto	0
No. 6 Ditto	ditto	0
No. 7 Ditto	ditto	0
No. 8 Ditto	ditto	0
¼in. border plain lines, about 12in. wide—	per foot run	0
1in. ditto	ditto	0
¼in. ditto diamond and inlaid	ditto	0
1in. ditto	ditto	0
¼in. ditto inlaid trellis oak & walnut	ditto	0
1in. ditto	ditto	0
¼in. ditto Greek key oak and walnut	ditto	0
1in. ditto	ditto	0
¼in. ditto Chevron oak and inlay	ditto	0
1in. ditto	ditto	0
¼in. ditto ditto oak and walnut	ditto	0
1in. ditto ditto ditto	ditto	0
¼in. ditto inlaid fret ditto	ditto	0
1in. ditto ditto	ditto	0
¼in. ditto oakleaf vein walnut inlay 15in. wide	ditto	0

(Note.—¼in. plain oak fillings can be laid as low as 1s. 2d. 1in. best parquet laid complete in inlays of coloured wood and elaborate designs are laid up to 6s. 6d. per foot super. laid complete, unpolished, and borders the same prices. ¼in. ditto ditto about 6d. per foot less.)

WOODBLOCK FLOORS.

		£
Common deal, sawn, 6in. thick laid complete (concrete not included) and asphalted joints	per yard super.	0
Ditto laid diagonally	ditto	0
Add for creosoting	ditto	0
Add for 6in. cement concrete formed of 7 of ballast to one of cement, and rough floated on top to falls	ditto	0

			£	s.	d.
for 1in. of British as-					
ılte and other asphaltes					
per list already given.					
White's block-flooring,					
vn only, and laid com-					
te.....		per square	2	8	0
ditto	ditto	ditto	2	13	0
ditto	ditto	ditto	2	18	0
ditto	ditto	ditto	3	7	6
ditto	wrought on				
e	.....	ditto	2	18	0
ditto	ditto	ditto	3	3	0
ditto	ditto	ditto	3	8	0
ditto	ditto	ditto	3	15	0
ditto	best quality	ditto	3	10	0
ditto	ditto	ditto	3	15	0
ditto	ditto	ditto	4	0	0
ditto	ditto	ditto	4	5	0
yellow deal (Geary's					
tem), including ⅛in. bed					
cement floated, mastic,					
tal keys		per yard super.	0	7	6
ditto	ditto	ditto	0	7	9
ditto	ditto	ditto	0	8	9
ditto	pitchpine ...	ditto	0	8	3
ditto	ditto	ditto	0	8	9
ditto	ditto	ditto	0	9	9
ditto	oak	ditto	0	11	0
ditto	ditto	ditto	0	12	0
ditto	ditto	ditto	0	13	6
ditto	teak	ditto	0	15	6
ditto	ditto	ditto	0	17	6
by 3in. by 1½in. Roger					
we's patent, yellow deal		ditto	0	6	6
ditto	pitch pine	ditto	0	6	9
ditto	oak	ditto	0	8	9
ditto	walnut	ditto	0	14	0
ditto	teak	ditto	0	15	0
ditto	birch	ditto	0	9	0
ordinary Westminster					
:ent floor.....		ditto	0	6	0
ditto	ditto	ditto	0	6	9
ditto	ditto	ditto	0	7	6
ditto with Disc key					
:ent		ditto	0	6	9
ditto	ditto	ditto	0	7	6
ditto	ditto	ditto	0	8	9
ditto pitch pine		ditto	0	6	3
ditto	ditto ditto	ditto	0	7	0
ditto	ditto ditto	ditto	0	8	0
ditto beech		ditto	0	7	6
ditto	ditto ditto	ditto	0	8	6
ditto	ditto ditto	ditto	0	9	9
ditto birch		ditto	0	8	9
ditto	ditto ditto	ditto	0	10	3
ditto	ditto ditto	ditto	0	11	0
ditto oak		ditto	0	9	0
ditto	ditto ditto	ditto	0	10	6
ditto	ditto ditto	ditto	0	12	0
ditto walnut		ditto	0	13	6
ditto	ditto ditto	ditto	0	15	6
ditto	ditto ditto	ditto	0	17	6
ditto mahogany		ditto	0	13	0
ditto	ditto ditto	ditto	0	15	6
ditto	ditto ditto	ditto	0	17	6
ditto teak		ditto	0	13	0
ditto	ditto ditto	ditto	0	15	6
ditto	ditto ditto	ditto	0	18	0
·dinary pattern in hard woods 1s. yard less.)					
am Duffey's (Acme Wood Flooring Co.,					
leal, laid complete		add foundation	0	5	3
ditto	ditto	ditto	0	6	0
ditto	ditto	ditto	0	6	6
ditto	ditto	ditto	0	7	6
pitchpine	ditto	ditto	0	7	0
ditto	ditto	ditto	0	8	0
ditto	ditto	ditto	0	8	6
ditto	ditto	ditto	0	9	6
oak	ditto	ditto	0	10	6
ditto	ditto	ditto	0	11	6
ditto	ditto	ditto	0	12	6
ditto	ditto	ditto	0	16	0

TE.—All cuttings extra 3d. to 5d. per foot
Floors properly prepared may be wax
ıed for 1½d. per foot sup., and French
ıed for 4d. per foot sup.

rtings—					
6 deal square fixed complete,					
cluding backings		per foot run	0	0	2¼
6 ditto	ditto	ditto	0	0	2⅝
7 ditto	ditto	ditto	0	0	3
8 ditto	ditto	ditto	0	0	3½
9 ditto	ditto	ditto	0	0	4
7 torus moulded	ditto.....	ditto	0	0	3
7 ditto	ditto ditto.....	ditto	0	0	3½
9 ditto	ditto ditto.....	ditto	0	0	4
11 ditto	ditto ditto.....	ditto	0	0	5
7 ditto moulded	ditto.....	ditto	0	0	3½
7 ditto	ditto ditto.....	ditto	0	0	4
9 ditto	ditto ditto.....	ditto	0	0	4½
11 ditto	ditto ditto.....	ditto	0	0	5
9 moulded and sunk	.....	ditto	0	0	4½
11 ditto	ditto ditto.....	ditto	0	0	5
13 ditto	ditto ditto..... ..	ditto	9	0	7
15 ditto	ditto ditto.....	ditto	0	0	9
rcular price at twice straight, where it					
e saw-kerfed to sweep, and at three times					
ht where it has to be cut from the solid.					
ed price at twice straight. Wreathed at					
mes.)					
angles to skirting.....		each	0	0	3
ditto	ditto	ditto	0	0	3
ditto	ditto	ditto	0	0	4
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ditto	ditto	ditto	0	0	5
mitres to ditto		ditto	0	0	2
ditto	ditto	ditto	0	0	3
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ditto	ditto	ditto	0	0	4
housings to ditto		ditto	0	0	2
ditto	ditto	ditto	0	0	2
ditto	ditto	ditto	0	0	3
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ditto	ditto	ditto	0	0	4

ROAD MAINTENANCE.*

By R. H. Dorman, County Surveyor, Armagh, Ireland.

(*Concluded from page 452.*)

THE cross section of a road should vary with its hardness and with its longitudinal slope. On level roads 1 in 24 is a suitable transverse slope where limestone or gravel are the materials used, 1 in 30 for slatestone, and 1 in 36 for hard whinstone roads. On hills the camber should be increased—for instance, on an incline of 1 in 30 with transverse slope of 1 in 30, if the surface is perfectly smooth, the water will flow off the road into the side channels at an angle of 45°; but as all roads tend to become tracked longitudinally, I would recommend the transverse slope on hills being made greater than the longitudinal slope. For the cross section of a road I prefer a flat elliptical curve for three-fourths of the width, and the shoulders well filled out. Roads constructed over peat bogs are very liable to get out of shape, owing either to the movement of the bog, to one or both sides being cut away, or to the traffic; in the latter case, owing to the bulk of the traffic passing over the middle of the road, the centre becomes depressed, and the sides rise; no remedy appears to have been found yet to prevent this distortion of bog roads. In many counties the cutting down of bog ramparts is an important item of expense. It is very difficult to prevent persons cutting turf right into the travelling way of bog roads, sometimes the turf is cut away to a depth of 20ft. below the road surface, and of course when this is done the rampart commences to split longitudinally, and rapidly goes to pieces, necessitating the whole being cut down. In carrying out such work, the metalling having been put on one side, the top of the peat, say for 2ft. in depth, should also be kept, and as soon as the rampart has been cut down, the top peat being dry and fibrous should be placed on the newly-cut surface; over this should be spread a thick layer of whins, and over this again a layer of clay or loamy gravel at least 6in. thick; after allowing a little time for this to consolidate, the broken stone may be spread off and blinded with sand or fine gravel; this description of work should always be carried out during the summer months. In making new roads over bogs the method usually adopted is to cut deep drains on each side of the proposed roadway and some 10ft. back from the line of fences, the stuff taken out being spread over floor of proposed roadway; small transverse cuts are also made at frequent intervals and field pipes laid down and covered over. When the bog has been well drained, it should be brought to a fair level and covered with layers of sods until formation surface of proposed roadway is at least 2ft. over flood level; on this surface should be spread a layer of whins, then a coating of clay or loamy gravel 9in. thick, and when this has consolidated the top metal can be spread off. I consider it useless to put a pitched foundation in a bog road, as the stones lose their position in a short time, and either rise to the surface or get lost in the bog. Narrow by-roads, termed "loanings" in the County Armagh, allowing only room for one cart, are difficult to maintain in good order. I usually have a portion of these roads, about one-tenth, sheeted each year, and repairs effected by filling in the wheel tracks, but the method is unsatisfactory. On hills the difficulty is intensified; there is no room for water tables, and very often the land on either side is higher than the road, so that all surface water, unless covered drains are put in, has to flow over the hills, probably for some distance, before it can find an outlet. Even on a hilly road 12 to 14ft. in width, farmers object to water tables being formed, on the ground that they cannot work their horses across the roads with a load; they want a road flat in cross section going up, while going down they want a channel to put one of the cart-wheels into. Country foot-paths are usually 4ft. 6in. to 6ft. in width. In the County Armagh, chisel-dressed granite (Newry and Bessbrook) and limestone, also roughly-squared stones, rough stones and sods, are used for kerbing. The dressed stone is specified 12in. by 6in. when laid flat, and 5in. by 10in. when laid on edge. The cost of completing a footpath with this class of kerbing comes to 3s. 6d. or 4s. per lineal yard, a channel of cobble stones 15in. wide costing 6d. a yard extra. The Newry or Bessbrook granite makes excellent kerbing, laid either flat or on edge; the limestone is better laid on edge, as it wears very smooth on top. A sod footpath costs from 1s. to 1s. 9d. yer yard, and with a squared limestone kerbing, 2s. 9d. per yard. Undressed stones I have ceased to use. For a new footpath the filling is composed of good hard material, over this is spread a layer of clean broken stone, and on this 2in. of gravel, or granite, whinstone, or limestone chippings; the gravel used should be of medium size and free from earth; if it does not bind quickly, it can be blinded afterwards with a little clean sand. The granite, whinstone, or limestone chippings from a machine, make excellent material when screened, but when the fine residuum is left in, the surface wears quickly and becomes very dirty in damp weather. Stone pavements consist of squared setts laid on a suitable foundation, the foundation usually consists of gravel, broken stone, or concrete of various thicknesses; this latter is the only reliable material, it should never be laid less than 6in. thick, while 9in. will carry the heaviest traffic. Portland cement and Thames ballast in the proportion of one to seven make excellent concrete. As the concrete is laid in the trench the top surface should be brought to the proper camber with the shovel. In Dublin I recently noticed the concrete was lightly rammed; while in India I was taught to have concrete thoroughly rammed until the lime or cement creamed to the surface; but this appears to be unnecessary and even injurious proceeding, particularly when a good cement is used. Granites of various qualities, whinstone, and occasionally sandstone are employed. For ordinary traffic Aberdeen or Newry granites are largely used. For very heavy traffic it is advisable to use greenstone or a hard granite; owing to the extreme hardness, of greenstone, it is very difficult to dress, and in consequence the neatest-looking pavements can be made with granite setts. Asphalte, an asphaltic mixture, and wood have been suggested as materials for packing, but they are seldom used, owing to the expense; sand and gravel are commonly used. When the foundation consists of broken stone or similar material, gravel is probably the best packing material, but it is not suitable for use on a concrete foundation; it is far easier to bed a stone on sand packing than on gravel, and when well rammed it will take an even bearing, but a stone laid on gravel is liable to rock and work loose. Formerly it was usual to bed each stone in lime mortar, no doubt a good method, but expensive. In the North of England, Dublin, and other places the joints are first filled with clean pebbles and then run with an asphaltic mixture, after which the surface is well rammed and covered with a layer of fine gravel. In the South of England the grouting usually consists of sand and lias lime or Portland cement. As regards the comparative advantages of lias and Portland cement as a grouting, I look on lias as the best substance to use when there is a probability of the pavement having to be disturbed from time to time to relay pipes, &c. Lias should also be used when the setts are of a slippery nature; one advantage of lias grouting is that it always appears to have some setting properties. When the paving is not liable to be disturbed, I look upon Portland cement as the best grouting for Newry, Aberdeen, and similar setts; the grouting and the setts wear pretty uniformly, and the stones do not work so round on the top as when a soft grout is used. When a cement grout is used the traffic should not be allowed over the surface for three or four days after the work is completed, as if the traffic is allowed over, many of the stones will work loose, and will, of course, remain so unless fresh grouting is run in; once, however, a pavement grouted with cement becomes thoroughly set, the heaviest traffic will not disturb the stones. Finally, while admitting the superiority of the "Manchester" grout with hard setts, I have a strong predilection for cement grout for the less durable setts, when laid on level ground. The setts should be laid touching one another, each stone should be so firmly bedded on the packing that it has not to rely on its neighbour for support; the packing should average 1in. in thickness, and there should be no pebbles in it, as if a pebble gets between the concrete and a sett it cannot be rammed, and will always rock. The rammer men require careful supervision; to avoid the trouble of lifting badly laid setts they often try to get an even surface by ramming the high stones extra hard, and omitting to ram the low-lying stones or stones

* A paper read before the Incorporated Association of Municipal and County Engineers at their meeting in Dublin, Sept. 25th and 26th, 1891.

inclined to give too much. Care should be taken when laying the pavement to see that the setts break joint. The rounding of the setts on the top is usually ascribed to the action of the wheels; but I believe it is rather due to the cogs on the horse's shoes. In conclusion, I have to express surprise that so few experiments are being made in the present day for the purpose of ascertaining the draught over different surfaces, the comparative merits of roads formed of different materials, how surfaces are affected by velocity of motion, and kindred matters; and that so little has been attempted to ascertain mathematically the resistance to rolling over different surfaces and with different velocities, the most economical means of doing work with animal power, the effects of inclinations, the development of grades, &c. I had hoped to prepare a paper dealing with these matters, but I found there were so little data to go on that a paper on these subjects would entail more labour and thought than I could afford to give in the limited time at my disposal, and I was therefore obliged to fall back on my own practical experience, and to present you with a paper which can be of little use to the older members of the Society, but which I trust may be of some assistance and interest to young surveyors.

ECCLESIASTICAL ART EXHIBITION AT RHYL.

At the Ecclesiastical Art Exhibition which is held every year concurrently with the Church Congress, the promoters have succeeded in bringing together a most interesting collection of objects in the Loan Collection. The Duke of Westminster heads the list with an old embroidered cope set as a screen. The Rev. Chancellor Espin has sent an interesting set of water-colour drawings of Chester Cathedral, taken in June, 1814, by Thomas Espin, F.S.A., of the Priory, Louth, Lincolnshire, who was one of the best architectural artists of his day, and one of the first members of the Society of Antiquaries. The drawings exhibit the cathedral from various points of view, and are executed with characteristic minuteness. When the cathedral was being restored about twenty years ago, these views were placed at the disposal of Sir Gilbert Scott, and were of much service to him as exhibiting many details which had since perished. The Rev. Dr. Preston, Trinity Vicarage, Runcorn, contributes a most valuable collection of relics and curios from Palestine, including a bronze ring used by the Crusaders, and the bones of sacrificed animals. From Egypt he sends charms from the mummies and old pottery from Heliopolis, and from Italy Roman lamps and arrow-heads found at Memphis.

Lady Harlech shows a silver chalice, having the emblem of the Passion engraved on the hexagonal foot, which was dug up some time ago in Bethnal Green, upon the property of the late Sir John Tyrrell, Bart. The Rev. T. M. Bulkeley-Owen, Tedsmore Hall, West Felton, Oswestry, contributes some fine specimens of chalices and veils, the banner of St. Chad's Mission Church, and a latten crucifix, some of which are of rare interest. Mr. J. Ignatius Williams sends some unique specimens of ancient printing from his library: Biblia Aurea Manuscripta, date 1470, the property of and apparently the work of a monk of the Order of St. Benedict; a Missale Romanum on vellum, capital letters illuminated in colours; and Liber Cronicarum ab Initio Mundi, de anno 1497. There are very beautiful sets of veils and burses—splendid example of modern work—sent by the Ven. Archdeacon Barber, of St. Mary's, Chester. Miss Powell sends a large original oil-painting of "The Salutation," or meeting of the Virgin and St. Elizabeth, with Zacharias standing near, and St. Joseph in the distance. An old chained Bible is lent by the Rev. Owen A. Nares, of Kerry, Newtown, Montgomeryshire. Mr. Franks again shows his collection of monumental rubbings, and the East Grinstead School send specimens of their embroidery. The Rev. L. R. Hughes, of Portmadoc, sends a very old silver chalice, with a silver lid; and among the collection from the Ven. Archdeacon Thomas, Meifod, Montgomeryshire, will be noticed an illuminated French MS. of "The Hours," written *c.* A.D. 1400, on vellum, with a copy of an Indulgence at the end granted by Pope John XXII. (1316-34). From the rector and churchwardens of Bodfari, Flint, comes an old silver chalice belonging to Bodfari Church, supposed by some to be of the time of Henry VII. A very quaint exhibit is that of the Rev. J. Davies, Vicar of Llanynys, Denbigh, consisting of "dog tongs," formerly used for expelling dogs from churches.

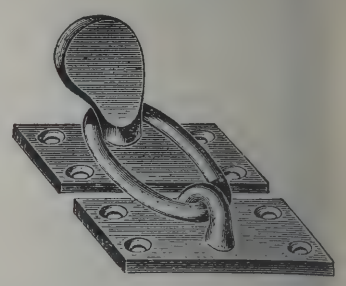
THE ARCHITECTURAL ASSOCIATION "BROWN BOOK."

The fifty-fifth session of the Architectural Association will be inaugurated this (Friday) evening by a conversazione to be given by the President and Committee at Westminster Town Hall, and concurrently with the invitation tickets to that gathering the familiar "Brown Book," the official kalendar of the Association, is issued this week to members. The new curriculum and the syllabuses of lectures, classes, and studio arrangements are the first and most important features of this annual, and deserve the attentive study of all architectural pupils and students. The Committee, in their report, commence with a reference to the fact that a new constitution and by-laws having been adopted by the Association, some steps have been taken during the session to carry into effect the New Scheme of Education. At the ordinary meetings of the session papers were read by Messrs. A. B. Pite, W. J. N. Millard, Needham Wilson, O. Fleming, J. L. Robinson, W. H. White, J. A. Powell, T. Stirling Lee, T. W. Pomeroy, W. S. Frith, J. M. Brydon, T. R. Spence, Gerald Horsley, Basil Champneys, H. V. Lanchester, H. Townsend, Percy D. Smith, Scott Morton, and Ernest Newton—all of which, it may be mentioned, were reported at the time of delivery in our columns. In the Elementary Division, lectures on the History of Architecture were again delivered—six on Classic and Renaissance Architecture, by Mr. Hugh Stannus, and six on English Renaissance, by Mr. F. R. Farrow; the number of students who attended the course was larger than in the previous session. The lectures on Construction were again delivered by Mr. E. C. Pinks. The class reports tell of a falling of numbers in both sections of that of Design and in that of Construction, and of an increase in that for the Study of Ornament and Colour Decoration. In the Advanced Division, lectures on Quantity Surveying and Specification Writing were given by Mr. J. E. Drower, and the number of attendances shows a considerable augmentation on last session. All the advanced classes announce an increase in numbers except that of Ornament and Colour Decoration, where, however, "the quality of the work has much improved." In consequence of the departure of Mr. F. W. Quick, the lecturer on Theoretical and Applied Mechanics and of Graphic Statics, for Australia, no reports are presented in those sections. The library has not been used so much as in past years, so that next session it will be opened in the day time also. The committee announce with regret that the Architectural Associations of Birmingham and Glasgow have terminated their affiliation with the London Association. The financial condition of the Association is spoken of as "fairly satisfactory," the financial year closing with a balance in favour of the Association of a shilling less than £650. The list of membership contains 1,137 names—a very small increase on last year's roll, which was 1,129; but still the highest number yet attained in the history of the Association. The syllabus of meetings for the session is as follows:—

Oct. 2, 1891. Opening Conversazione.
Oct. 16. Annual General Meeting. Address by the President, F. T. Baggallay.
Oct. 30. "Pitfalls on Commencing Practice," W. H. Bidlake.
Nov. 13. "Frame Houses," C H. Brodie.
Nov 27. "Concerning John D. Sedding: his Work and Influence," H. Wilson.
Dec. 11. "Some Suggestions for the Practical Education of an Architect," T. G. Jackson.
Jan. 15, 1892. "The Design and Equipment of Technical Schools and Colleges," Professor Garnet.
Jan. 29. "Fashion in Architecture and Art, with remarks on its Effect on Mural Painting and Painted Glass," N. H. J. Westlake.
Feb. 5. "Suggestive Domestic Work Seen in Past A. A. Excursions" (with lantern illustrations), Maurice B. Adams.
Feb. 19. "Domestic Electric Lighting," Max Clarke.
March 4. "How They Built in Shakespeare's Time" (with lantern illustrations), J. Alfred Gotch.
March 18. "The Planning of Theatres," E. A. E. Woodrow.
April 1. Subject of paper to be announced.
April 22. Members' soirée.
May 13. Subject of paper to be announced. Nomination of officers.
May 27. "The Travelling Student's Notes," Kotaro Sakurai. Election of officers.
May 31. Annual dinner.

PICCAVER'S PATENT SASH FASTE

This invention provides in a simple fo really reliable and strong fastener, dra the sashes together, and preventing all shal It is specified for the buildings being erecte



the Guinness Trust Commissioners, and is invention of Mr. J. A. Piccaver, architect, Newland-chambers, Northampton. The l plate is fixed on the lower sash, and the thu bit on the upper sash, so that when closed the touches the neck of the thumb-bit, in same p tion as shown in the sketch. The fasteni perfectly burglar-proof, and there is no fe the sashes sticking. It is reasonable in price, ought to find favour.

COUNTY COUNCILS AND TECHNI EDUCATION.

The Guild and School of Handicraft, E House, Mile End-road, London, E. view of the recent action of the County Cou schools, and other corporate bodies in the m of technical education, and also of the n demands received by them from various quar the governing body of the Guild and Scho Handicraft have decided to offer the follo suggestions to the counties for carrying out of the objects required;—

1. The Guild and School of Handicraft is r to prepare schemes for the organisation of manual training in any county, in any dis (urban or agricultural), or in any schoo institution.

2. Also to send, in conformity with schemes, fully competent and qualified crafts of the highest skill as instructors in the elem tary handling of different materials—such wood, metal, clay, &c., in such lines of wor carpentry, joinery, wrought and hammered w carving, modelling, also mechanical draw designing, &c., the instructors being men themselves artisans, are likewise well conver with the educational curriculum of the Scho Handicraft.

3. Also, where it is sought to develop training, by means of local men, to send, a spectors from London, men of practical skill, at the same time, of educational experience examine and report upon the training give country and other schools and workshops.

4. Also to advise as to the planning or erec of any school buildings, and to superintend erection of the same.

5. Also to supply and fix all necessary pl tools, and equipments.

6. Also to supply, or to advise as to the se tion and circulation of, any works of handic replicas, casts, working models for prac lessons, diagrams, photographs, designs, &c conformity with the wants in special cases.

7. Inasmuch as the work in the Schoo Handicraft has, during the last three years, found to be most successfully furthered by instruction given by the artisans of the Gui masters and teachers of elementary schoo London, some eighty of these masters bein present on its books, special attention wi paid by the Guild and School to this branc the work in any scheme or system of teac drawn up by it for school or county; it b the masters of elementary schools who have training of the artisans of the future in hands.

A detailed draft or manual will be is shortly which contains information and advi to the above subjects, and which may be obta on application to the secretary of the Gui Handicraft, Mr. Frank Prout, Essex Ho Mile End-road, E.

This draft, together with any others of a special nature, is issued with the approval o

e educational committee of the Guild and f Handicraft, the functions of this com- being educational and consultative only. eme, if accepted by county, borough, or nay—at the option of those for whom it red, and with any modifications by them vise—be placed into the hands of the f Handicraft to be carried out into prac- rking.

CHIPS.

. G. Jones, of Oswestry, has been appointed and sanitary inspector to the Potterspury nitary authority.

e hotel to be known as Bruce's is about to on the Links at Carnoustie, N.B. Mr. raser, of Carnoustie, is the architect.

s been decided by the Liverpool Library and Arts Committee to hold, in the Art Gallery in that city, next spring, an on of naval and nautical pictures, models, ics.

Dove Wilcox introduced, on Friday, at a of the Bristol Chamber of Commerce, a devised by Messrs. Trew, of that city, ts, for connecting Kingswood, St. George, nham with the Midland and Great Western y systems. The matter was referred to a tee of the chamber for consideration.

pening of the new police-courts and offices l-road, Bootle, will take place on Thursday on, October 22. The buildings are Classic , and have cost about £10,000. Mr. C. J. on, of Dale-street, Liverpool, is the archi- d the contractors are Messrs. George Woods n, of Bootle.

Saturday afternoon, the foundation-stone of a resbyterian church and school, to be called ll Memorial, was laid at Bedlington by Sir B. Bruce. The cost is to be £1,700. It is eometrical in style, built of local red brick, one dressings and firebrick bands. The roof be covered with Welsh slates, with green oreland bands. The whole of the joiner s to be executed in pitch-pine. There will ommodation in the church for 300 people, the schools for 200 children. The architect Neil Macnara, of Rumbling Bridge, Stirling, e contractors are Messrs. Brown Brothers,

Tuesday week the chairman of the Romford of guardians laid the memorial-stone of the ary in course of erection on land adjoining nion-house. The infirmary will consist of a l block of two floors with a wing on each side. floor will accommodate 28 beds. The prin- vards and lavatories will be lined with glazed , the floors will be fireproof, and there will be roof staircase to the verandah for use in case . In addition to the erection of the infirmary, erable additions are being made to the union- , including a dining-hall, to seat 350 persons, kitchen, and a new boiler-house and water- . The architect is Mr. F. Whitmore, of sford, and the work is being carried out by s. J. S. Hammond and Son, of Romford.

bridge collapsed on Friday on the North h Railway on the Waverley route opposite , and about two miles north of Galashiels. It single iron girder bridge without piers, rest- an abutment at each side. The flood of the us Monday had undermined the abutment on uth side, and on Friday half of the bridge fell aving the down-line rails suspended, and held nation by its grapplings with the other line of

foundation stone of the "Eiffel" tower for pool was laid on Friday. The buildings will ected from designs by Messrs. Maxwell and , of Manchester, whose design, selected in stition, was illustrated in the BUILDING NEWS 3rd July last. The buildings occupy a site of square yards, lying on the front and mid-way en the two piers. The space surrounding the will be occupied by a series of buildings, ling a circus, a market and arcade, shops, rant, a promenade, and concert-room. The will be of steel, carried to a height of nearly ., the principal gallery being at an elevation 0ft. from the ground, and forming an inclosure square. Above this will be a series of three galleries varying from 30ft. to 14ft. square, he whole will be crowned by a crow's nest 5ft. meter.

der the title of John Fell (Limited) a company een registered, with a capital of £100,000, in hares, to carry on the business of a builder ontractor for public works, and of a worker lealer in timber and metals, and of a brick and aker, and dealer in fireclay and other mine- and to carry on the business of a farmer and -dealer, shipowner, contractor for railways ramways, &c.

Building Intelligence.

ABERDEEN.—The plans of two new public buildings were sanctioned by the plans committee of the town council on Friday. The first plans were those of Mann's Hotel, in Union-terrace, the architects being Messrs. Matthews and Mackenzie. The hotel will have a frontage of 81ft., and be four stories in height, with attics and basement floors. The estimated cost is £10,000. The other building is a chapel for the Sisters of St. Margaret's of Scotland, to be erected on the west side of Spittal, and measuring 64ft. in length, 18ft. in width, and 36ft. in height. Messrs. Bucknell and Cowper, London, are the architects, and the estimated cost is £2,000.

ALDERSHOT.—The important alterations at Aldershot Camp, to be effected by means of the sum of nearly £1,500,000 granted by the Barracks Act, are now rapidly advancing towards completion, and will, in a few months, take the place of the old wooden huts, in use since the Crimean War. The scheme of reconstruction not only provides better accommodation, but contemplates a great increase in the number of the troops. Sixteen instead of nine battalions will constitute the infantry establishments, and fourteen of these will be housed either in the new barrack buildings or in brick huts. The remaining two battalions will be quartered eight miles off, in the buildings formerly known as Woking Convict Prison. The strength of other branches of the Army is to be proportionately increased. The site for the headquarter offices has been chosen. Schemes of electric lighting and for unlimited supply of water by artesian wells are now under consideration by the engineer authorities

ASTON.—The foundation stones of new public baths for Aston, Birmingham, were laid on Wednesday week. The buildings are situate in Victoria-road, and will be Classical Renaissance in character, the frontage being of bright red terracotta. Immediately entered from the central porch, there will be eight private baths for ladies on either side of the entrance. Inside the first-class entrance will be five private baths, and a staircase at one side will lead to the committee room, situate in the main frontage. From the other side of the entrance the first-class swimming bath will be approached. This will be 78ft. by 39ft., and the depth will vary from 3ft. 6in. to 6ft. 6in. The superficial water area of the bath, which will be lined with white glazed brick, will be 3,042ft. Forty-three dressing-rooms, divided by brick partitions, will be provided here, together with a hot-room, and a promenade gallery, holding 500 persons, will run round three sides of the bath. The building materials are pressed red brick relieved by bands of buff brick and a dado of glazed white brick finished with coloured stringcourses. At the other end of the building will be the second-class swimming bath, similar in design to the first-class bath, but measuring only 60ft. by 33ft., and having a superficial water area of 1,980ft. There will be 59 dressing boxes here, and a special feature of this section will be a soap plunge bath. The engine-house and laundry will be at the rear of the second-class baths, and the caretaker's residence will front on Albert-road. The engine and pumps are being supplied by Messrs. Piercy and Son, Broad-street, Birmingham. The contract for the hot and cold water supply pipes, steam pipes, and heating work has been given to the Griffin Fountry Co., Birmingham. The work will cost about £12,000. The drawings and specification have been prepared by Mr. W. Augustus Davies, A.M.I.C.E., engineer and surveyor to the Aston Manor Local Board, and the work is being carried out under his direction. Mr. J. H. Smith is clerk of the works, and the contractor for the same is Mr. F. N. Stephens, of Aston. The terracotta is being supplied by Mr. Edwards, of Ruabon, who also supplied the terracotta for the front of the recently completed Birmingham Law Courts.

BARNINGHAM.—The parish church of Barningham, near Barnard Castle, was reopened by the Bishop of Ripon last Saturday, after having undergone a complete transformation under the hands of Mr. J. P. Pritchett, architect, of Darlington. The scheme as carried out comprises new traceried windows, the erection of an arcade on either side of the nave, reducing the width and forming narrow aisles, erecting a chancel arch about 10ft. further west than the old one, so as to lengthen the chancel by so much, and at the same time reducing its width by building thin walls inside, forming vestries on each side as chancel aisles. The flat ceiling was removed, and by cutting out the central parts of the tie-beams, open hammerbeam roofs with curved braces were formed without disturbing the rafters or slates. New fittings were furnished throughout the church, those in the chancel being of Austrian oak and in the nave of yellow pine. The work has been carried out under the superintendence of Mr. Pritchett and his son, Mr. H. D. Pritchett, Mr. Dodds being clerk of works. The total cost was £1,500.

BELVEDERE.—The old oaken pulpit in Belvedere parish church has been replaced by one of stone and marble, placed there as a memorial to the late Rev. J. H. Bernau. The new one is made entirely of Beer stone. It is octagonal on plan, and is of Early English character. The rostrum itself is moulded. On the four cants are circular and recessed panels, in which are carved, in high relief, the symbols of the different Evangelists, as recorded in Holy Writ by Ezekiel and St. John. The pulpit is surmounted by a polished English alabaster cornice. The work has been carried out from designs by Mr. Edward Hide, New City Chambers, Bishopsgate-street, E.C., by Mr. Harry Hems, of Exeter.

LONDON COUNTY COUNCIL.—At the meeting of this body on Tuesday a report was submitted by the Improvements Committee stating that they had come to the conclusion that the most pressing street improvements were (1) Sandys-row to Bishopsgate, (2) Boziers-court, Tottenham Court-road, (3) the widening of the Strand at Holywell-street, and (4) the widening of Nine Elms-lane, Battersea. They recommended that the Council apply in the next Session of Parliament for powers to carry out those improvements. The committee added that they particularly regretted being obliged to contemplate the postponement of the proposed new street from Holborn to the Strand, as they felt it was one of those improvements which should be undertaken at the earliest possible moment which the Council's finances would admit of. After a long discussion on the incidence of taxation, in which it was urged that the ground landlords ought to bear a proportion of the burden, the proposal as to Sandys-row, estimated to cost nearly £90,000, was agreed to, consideration of the three other schemes being adjourned. The following loans to local authorities were agreed to:—The Vestry of Lambeth, £20,000 for jarrah-wood paving works in the Kennington Park-road and Brixton-road; the St. Saviour's District Board, £1,600 for wood paving in Borough High-street; the Vestry of St. Margaret and St. John, Westminster, £10,300 for asphalte and wood paving works; the guardians of Fulham, £26,000 to defray the cost of the enlargement of their workhouse; the guardians of St. George's-in-the-East, £6,200 to purchase a freehold site and erect a laundry; and the commissioners of baths for St. Margaret and St. John's, Westminster, £7,000 to purchase a freehold site and erect a library.

LEIGHTON BUZZARD.—Memorial stones have been laid of a new Baptist Chapel for the congregation worshipping at the Hockliffe-road chapel. The new building will be of red brick, with Bath-stone facings. The front, of black-pointed red brick, with stone facings, will have a central door, and two side entrances to the galleries. The size of the chapel will be 67ft. by 40ft. The vestries are in the rear, and the schoolroom, also at the back, measures 45ft. by 26ft., with ten classrooms at the sides, 8ft. square, and infants' classroom behind, 25ft. by 15ft. The estimated cost is £3,300. The architect is Mr. Hampden W. Pratt, of 6, Duke-street, Adelphi, London; and the builder Mr. Garside, of Leighton Buzzard.

NEWCASTLE-ON-TYNE.—The banking premises in Collingwood-street were formally opened on Monday. The bank is in the Italian style, and has a frontage of about 100ft., with a height of 54ft. The architect is Mr. R. J. Johnson, F.S.A., of Newcastle and York; the contract has been carried out by Mr. Walter Scott, of Newcastle; and the clerk of the works is Mr. W. R. Bennett. The principal entrance is in the centre, through a door-case of red granite. All the rest of the front, except the plinth, which is also of granite, is of Gunnerton freestone. Internally the basement is occupied by the safes and strong rooms, which are arched with brick. In the

centre of all is the bullion safe, lined with steel alike as to walls, floor, and roof. Lavatories for clerks, chambers for heating, and so forth, are also arranged on this floor. The banking room and partners' room, with two waiting-rooms, occupy all the ground floor except the space required for staircases. The principal rooms, which are large and lofty, are fitted up in the same style as the building, the banking room being panelled round with oak for about 6ft. in height. All the counters and desks are designed to correspond. The partners' room is fitted up in mahogany. There is a hydraulic lift for raising and lowering the books to the basement.

Rhyl.—In anticipation of the meeting of the Church Congress, the chancel of St. Thomas's church has been enriched by the addition of a new reredos, the gift of Mr. R. Bamford Hesketh, of Gwrych Castle, Abergele. The architectural framework and surroundings are of polished, veined alabaster, and all the sculpture of white alabaster, the super-altar of solid Devonshire marble. The central feature is a group of the Crucifixion, and in the panelling on each side, divided by pinnacled buttresses, are angels kneeling in attitudes of devotion; a carved and embattled cornice of unequal elevation surmounts the whole. Extending from the reredos on each side, filling up the space on east wall, and continuing along the north and south sides 18ft., is an arcading of Caen stone, supported by marble columns, the divisions being filled with a diaper of embossed terracotta tiles. The whole has been executed by Messrs. Earp and Hobbs, of London and Manchester.

CHIPS.

The total cost of the Eiffel Tower is officially stated to have been 7,457,000 francs (£298,280).

Dr. Butt, Bishop of Southwark, on Saturday, laid in Mint-street, Borough, the first stone of a Roman Catholic Church, to be called "The Church of the Precious Blood." The building, of red brick, and accommodating about eight hundred worshippers, will be planned on the lines of some of the older churches of Rome. Entrance will be gained by descending several steps through a deep porch. There will be no aisles. The cost is to be £7,000.

Messrs. Bridgman and Goss, of the Poultry, have prepared plans for the Murphy Memorial Hall, to be reared on the site of Borough-road Church to perpetuate the life-work of the late G. M. Murphy. It is intended to have one large hall with gallery to seat 1,000 persons, with a lesser hall and six class or committee rooms, at an expenditure of about £6,500.

Mr. Thornhill Harrison, M.I.C.E., an inspector of the Local Government Board, held an inquiry at Wimbledon on Thursday in last week, concerning the Local Board's application for sanction to borrow £6,000 for widening Wimbledon-hill, and £200 for making up Cochrane-road. Mr. Whitfield, clerk to the board, said the land would be £2,500, and the work would cost £3,082, besides which there was required 10 per cent. for contingencies, and £50 for costs. The scheme was for the much-needed widening of the hill and of High-street. Provision was made for preserving as many as possible of the trees which formed a great ornament to the hill. The hill would be made a uniform width of 70ft., and High-street 50ft. No opposition was offered to the application.

The ceremony of consecrating Holy Trinity Episcopal Church, Dunfermline, took place last week. The church, which is situated in Viewfield-place, has been built by design from Dr. Rowand Anderson, Edinburgh, and is in the Fifteenth Century style. It consists of a nave and chancel, with vestry and organ chamber. Accommodation is provided for more than 200 worshippers, and provision is made for adding a transept on the south side. The roofs are of iron.

The Bishop of Colchester will open to-morrow (Saturday) a mission hall at Burnt Mill, in Essex. It is cruciform in plan, and has cost about £500, the material used being red bricks and tiles, with timber and brick-nogged gables and porch. The windows are fitted with rough green cathedral glass, and the roof is covered with Broseley tiles. It has been erected from the designs and under the superintendence of Mr. Leonard Martin, of the firm of Treadwell and Martin, of Waterloo-place, S.W. The builders were Messrs. French and Ellwood, of Westminster.

The death is announced of the great Danish numismatist, C. L. Müller. He was the Keeper of the Royal Collection of Coins and Medals, and the Inspector of Thorvaldsen's Museum at Copenhagen. He had written many works on ancient coins.

COMPETITIONS.

Shrewsbury Public Baths.—A special meeting of the town council was held on Monday, when the competitive plans for the new public baths were submitted. The Baths Committee recommended that the design sent in by "Plan" be accepted by the council as the most suitable, and that the design of "Naiad" receive the second premium. The committee's report was adopted, and on opening the sealed envelopes it was found that the author of the successful design is Mr. J. Johnson, Queen Victoria-street, London, and the second is Messrs. Horton and Co.'s, Wednesbury. The premiums are £50 and £20 respectively.

Kendal.—Messrs. Leeming and Leeming, the assessors appointed in the competition announced by the borough of Kendal for proposed additions and alterations to the Town Hall Municipal Buildings, have recommended the following award: — 1st, "Adaptability," Mr. Stephen Shaw, F.R.I.B.A., of Kendal; 2nd, "Truth," Messrs. Woodhouse and Willoughby, of Manchester; 3rd, "Fides et Justitia," Mr. J. A. Macgregor, of Dumfries.

Lambeth. — Mr. A. Hessell Tiltman, F.R.I.B.A., of 70, Torrington-square, W.C., has received an official notification from the clerk to the Commissioners of Baths and Washhouses for Lambeth, that, upon the recommendation of their arbitrator (Mr. Henry Currey), the first premium had been awarded to him by the commissioners for his design submitted in competition for their new Westminster Bridge-road establishment. This is the third consecutive competition Mr. Tiltman has won in twelve months for three sets of baths and washhouses, and in each case a different arbitrator was employed.

ARCHITECTURAL & ARCHÆOLOGICAL SOCIETIES.

Bristol Master Builders' Association.—At a meeting of the committee of this association held last week, the following resolution was adopted: "That this committee is of opinion that the Electrical Lighting Committee, in passing over the lowest tender for their new station and accepting a higher one, have committed an act of great injustice both to the contractor, whom they have ignored, and the ratepayers, and that the lowest tender should always be accepted, unless good and sufficient reason is shown to the contrary, which this committee considers does not exist in this case." In addition to the prizes adjudicated in the practical work at the Merchant Venturers' Schools on the plumbing class, the following have been awarded the Master Builders' prizes for theoretical work and attendance: First prize to Charles J. Webber, second to Percy N. Biggs, and the third to H. J. H. Russell.

Waterlow Park, Highgate-hill, was thrown open freely to the public on Tuesday last.

The late Mr. Walter Kidman Foster, formerly of Threadneedle-street, banker, and late of Leinster-gardens, Hyde Park, who left personal estate amounting to £82,000, has bequeathed to the University of Cambridge his collection of antiquities, to be deposited in their Archæological Museum, on condition that the prehistoric and Anglo-Saxon portions are kept and exhibited together, and designated "The Walter K. Foster Bequest"; he also bequeaths £100 for the purchase of a case or cases for the exhibition of the said antiquities, and such of the antiquarian works in his library as may be selected.

Sir John Fowler, writing upon the jubilee of the London, Brighton, and South Coast Railway, mentions that the original engineer of that system was the late Mr. Rostrick, who not only carried out the main line to Brighton, but the lines of the system now known as the London, Brighton, and South Coast Railway, extending to Lewes, Hastings, Portsmouth, Horsham, Newhaven, and other places. As a very young engineer at the time, Sir John Fowler was Mr. Rostrick's principal assistant, and testifies that no other engineer was associated with Mr. Rostrick in the construction, although Sir John Rennie was associated with him in obtaining the Act.

A new turret clock has been erected in the new tower of the parish church at Lymm. Messrs. Wm. Potts and Sons, of Leeds, are the makers. The clock is constructed from the designs of Lord Grimthorpe. It has the double three-legged gravity escapement compensation pendulum, and all the latest improvements, and will be one of the best timekeepers.

TO CORRESPONDENTS.

[We do not hold ourselves responsible for the op
our correspondents. All communications s
drawn up as briefly as possible, as there
claimants upon the space allotted to correspond

It is particularly requested that all drawings
communications respecting illustrations or litera
should be addressed to the EDITOR of the
News, 332, Strand, W.C., and not to member
staff by name. Delay is not unfrequently
caused. All drawings and other communicat
sent at contributors' risks, and the Editor
undertake to pay for, or be liable for, unsought
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The charge for Competition and Contract A
ments, Public Companies, and all official adver
is 1s. per line of Eight words, the first line co
two the minimum charge being 5s. for four lines
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and Trade Advertisements (except Situation
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All Situation Advertisements must be prepaid.

Advertisements for the current week must
office not later than 3 p.m. on Thursday. F
advertisements and alterations in serial adver
must reach the office by Tuesday Morning to sec
tion.

NOTICE.

Bound volumes should be ordered early (pric
Shillings each), as only a limited number
up. A few bound volumes of Vols. XL., XLI.
XLIX., L., LI., LII., LIV., LVIII., LIX.,
may still be had, price Twelve Shillings; all
bound volumes are out of print. Most of the ba
bers of former volumes are, however, to be ha
Subscribers requiring any back numbers to
volume just ended should order at once, as
them soon run out of print.

Received.—B. S. M.—E. F. and Co.—Justitia.—
R. P. (Brighton).—E. S. P. Co.—J. Maley.

"BUILDING NEWS" DESIGNING CL

We have mislaid the address of the author of th
sent in during 1890-91, marked by the motto "
Will he please forward it? The award of the
being made, and will shortly be published
conditions for the forthcoming session. As
shall, in the mean time, be glad to receive any
suggestions, and also the names of intending

Correspondence.

THE A.A. LECTURE FEES.

To the Editor of the Building New

Sir,—I have before me the notice sen
the A.A. for the coming sessional lect
students; but it strikes me that the
£10 10s. for the course will operate ag
success, which all should desire, as I ta
be the intention of the committee to e
great a number as possible, and for this
I think a payment of £5 5s. would ha
crowned with better results. No doubt
were arranged so as not "to compete
University College course of £11 11s."
views also on this are the same, for the
that premiums have to be paid on enterin
articles.—I am, &c.,

Anxious for Success of the

At the Consistory Court of the Chanc
Carlisle on Friday, an application was made
vicar of Rydal to put up a stained-glass m
window in Rydal Churchyard, in memory o
Mima and Rotha Quillinan, relatives by mar
the poet Wordsworth. The window will
work of Mr. Henry Holiday, London. The
is a study of angels with a scroll bear
inscription: "In Heaven the angels alw
behold the face of my Father." The app
was granted. The cost of the window wil
guineas.

Intercommunication.

QUESTIONS.

632.]—**Lift and Force Pump.**—I have had a nd force pump fixed which does not work and dis-ge as it should do. It has 2in. suction pipe and 1¼in. ery. When working it makes a chucking noise. e is a reducing socket on the barrel and two bends in :arging pipe before reaching the tank. Where is fault? Should the delivery pipe be larger? Will : of your correspondents please put me right?—IBA.

633.]—**Soil-Pipes.**—I have lately noticed many pipes of 4in. diameter being reduced to 3in. above tion with w.c., and, being carried up above ridge of they act as ventilating pipes. One of the by-laws of borough says: "If a soil-pipe be carried up to act as ntilating shaft there shall be no diminution in its ieter." Do the pipes ventilate better if reduced? ld some authority kindly explain this, and recom-i some good book on drains—not a dear one?—TOWN LS.

634.]—**Brick as a Building Material.**—I am ıding to build a house for my own occupation, and d prefer it of brick; but there is a prejudice against : houses in this district, though I cannot quite make the proper grounds for it. Will any of your erous readers say if there is any difference from a ıary point of view between a brick and stone-built e, and, if so, the reasons for such difference?—ıRAMUS, Huddersfield.

635.]—**Stone Railway Bridge.**—Given a stone of a railway bridge with two lines of rails, carrying ıch a certain rolling load per foot. In calculating ırve of equilibrium &c., in the arch, is the rolling merely added to the dead load (as the moving load the case of floors &c.)? and, if not, how is allowance e for it?—AN OLD SUBSCRIBER.

636.]—**Very Hard Impervious Floors nted.**—Will someone kindly inform me as to the t wearable kind of floor in the market for lavatories, ages, &c, in industrial buildings where there is mous and constant traffic with hob-nailed and iron-ed boots? Can any class of cement or concrete, or , or asphalte, be reckoned as fairly permanent under conditions?—S. S. S.

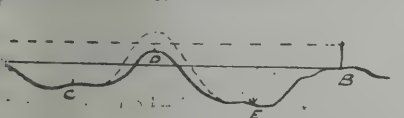
637.]—**Discoloured Paper.**—Will someone ly give a means of taking out the yellowish tinge ı some plans, caused by the London atmosphere.—I. EASTON.

638].—**Concrete.**—In Spon's "Architects' and ders' Pocket Book," 1883, page 42, the materials for rete (building) are described thus: "Half measure Portland cement, half measure of air-slaked lime . seven measures of sand and gravel . . . . mixed ther dry . . . . &c., &c." I have been warned not se lime and cement together. Will anyone who has experience of the ill-effects arising from same kindly the results of their experience?—PERPLEXED.

639.]—**Details.**—Will some reader kindly give me ıame of a good book treating on the details of Gothic-ried windows?—MASON.

REPLIES.

622].—**Surveying.**—Student may find the follow-ıseful:—He sets his theodolite up at point A, and : levelling it, fixes the telescope on point B. He s his man on with a long pole, and gives him points ıd D on the line A B. Owing to the dip in the ground : he cannot see the pole, and finds it necessary to shift theodolite to point D, where he sets it up again as at He can then give point E. Care must be taken to level instrument accurately, as otherwise the line will not



traight. Supposing, however, the point D should be ıer than either A or B, as shown by dotted line, then lent will have to go to point D and select a point as : as he can judge in a line with A B. He fixes the scope on point A, and then, keeping the body of the rument firmly clamped, takes the telescope out of the and reverses it in the direction of point B. Should it ither to the right or left of B (as it probably will), the rument will have to be shifted until the point is ıd at which, when the telescope is fixed on A, it , when reversed, also be in a direct line with B—that say, if the telescope is pointing to the left of B, the rument must be shifted to the right until from the ıt D the crosshairs of the telescope fix directly on ıts A and B. These lines present few difficulties with , but in town work, where houses intervene, it is uently found necessary to throw angles round build-s, &c. Space will not allow of any description of ıe; but I should advise student, if in London or some he towns in Lancashire and Yorkshire, to try and get ntroduction to some of the surveyors of the Ordnance vey engaged in surveying in these towns, where he can ain more practical instruction in the course of a day n he can possibly do from any written instruction.—H. RICE, O.S.O., Chester.

629.]—**South Kensington Exams.**—"An roduction to Gothic Architecture," by J. H. Parker. hird Grade Perspective," by H. J. Dennis (approved the Science and Art Department).—CHARLES T. HEN.

A new Wesleyan chapel at Mickleton, near esham, was opened on Wednesday week. It ts 200 persons, and cost £700. Mr. J. T. Shep-d, of Honeybourne, was the builder.

Legal.

REPAIRING COVENANTS.

IT is quite usual in the dull season of the year for the wrongs of tenants and lessees to be brought out once more in the newspapers. "The Lament of a Leaseholder" has accordingly been heard of late loudly complaining of covenants to repair. It is said that these clauses in leases become more and more stringent as time goes on. This may be true so far as internal decoration is concerned, because, if tenants will have their houses done up to such a pitch of artistic luxury before taking a lease, they must either pay the landlord an increased rent as interest upon his added outlay, or, keeping to a reasonable rent, they must be bound by strict covenant to leave the premises in the same state of artistic internal decoration, so that he may be able to get another tenant at a similar rent without having to sink more money in the property. In such matters tenants should not act for themselves, as they too often do, only to find out afterwards, when too late, what a muddle they have made of the whole business. They should consult their architect as to the probable cost of such repairs, in the same way as they see their solicitor upon the legal effect of the covenants in their lease.

It is, of course, merely a matter of bargain, and there is now nothing more harsh in the law which binds a man to carry out the clauses to which he has agreed in his lease, than there is in the same legal obligation to abide by the clauses of a deed of partnership upon the sale of a business. But it has become a stock article of faith with many that the law is all on the side of a lessor, and it seems useless to point out to them that the law simply enforces the provisions of the lease which they have themselves signed, after what should have been proper advice and full consideration. Of course, it occasionally happens that hard cases arise, as when an original lessee finds himself liable for repairs long after he has assigned over all his interest to an assignee whom he thought sound. But these risks are run in other ways without throwing the blame upon the law. It is also not uncommon for the holder of an old lease at the end of the term to find he has to pay much more than he expected in the way of repairs. But this, again, arises from his having gone into a speculation without having first consulted his surveyor.

FRED WETHERFIELD, Solicitor.
1, Gresham Buildings, Guildhall, E.C.

NOTE.—All questions for reply in this column must be headed "BUILDING NEWS," and must reach my offices, as above, by Tuesday morning each week.

TENANT.—TENANCY.—By paying your rent quarterly you have become, by implication, what the law calls a "yearly tenant." There is no such thing as a "quarterly tenant" in law, except by agreement. So you must give six months' notice, expiring at the same quarter or date as that from which your holding began. A quarter's notice can only be sufficient in such cases, where it has been so agreed.

X. Y. Z.—LAND TAX.—This is *primâ facie* and legally a landlord's tax. But if a lessee or tenant agrees generally to pay "all rates and taxes," this includes land tax; because there is nothing in law to prevent such an agreement, as there is in the case of Income or Property-tax. So that these two taxes are not analogous, nor subject to the same legal rule, as you seem to suppose.

CHIPS.

The county council of Shetland have appointed Mr. Alexander Ross, of Aberdeen, as road surveyor for the county.

A stained-glass window, having as its subject the Maries at the Tomb of the Risen Lord, has been placed in the south aisle of St. John the Evangelist's Church at Bexley, Kent. Messrs. Burlison and Grylls, of London, were the artists.

Messrs. Dale, Young, Nelson, and Co. have recently opened premises for the purpose of banking in Grey-street, Newcastle-on-Tyne. The building has been constructed by Messrs. Tyrie and Graham, of Gateshead, from plans supplied by Messrs. Lamb, Armstrong, and Knowles, architects, Newcastle.

Alterations are in progress at Hagley Church, comprising the enlargement of the clergy and choir vestries and organ-chamber. The plans of Mr. Tom Grazebrook, architect, of Stourbridge and Dudley, have been approved of, and the work is now being carried out under his superintendence by Mr. W. North, builder, of Stourbridge.

LEGAL INTELLIGENCE.

IN RE R. T. ELSAM.—The statement of affairs of Richard Thomas Elsam, architect and surveyor, of 36, Market-place, Kingston-on-Thames, and residing at Westbourne Villa, Hampton Wick, estimates the gross liabilities at £859 19s. 1d., £722 4s. 1d. of which is due to unsecured creditors, and £6 7s. 6d. a creditor partly secured, giving £728 11s. 7d. to rank for dividend. After deducting preferential creditors, his net assets are set out at £518 11s. 9d. The debtor alleges the cause of his failure to be general depression in building operations during the last three or four years, and being compelled to resign his position as surveyor to the Hampton Wick local board, and their refusing to pay his professional charges.—The Official Receiver's observations set forth that the receiving order was made on the debtor's own petition. The debtor said he commenced business twenty-five years ago without capital, being from 1866 to 1874 in partnership with a Mr. Walker. In 1871 he was appointed surveyor to the local board at Hampton Wick, and this appointment he held until May, 1890. The debtor's offices in Kingston were opened in May, 1889. The only books kept have been rough diaries.

POLLUTION OF THE RIVER BLACKWATER.—CONFLICTING PROFESSIONAL EVIDENCE.—In the Farnham and Aldershot County Court on Wednesday week, the action of "Hartley Wintney Rural Sanitary Authority v. Aldershot Local Board" came before his Honour Judge Lushington. The former authority originally obtained an injunction against the local board to prevent them from polluting the river Blackwater. An application was consequently made to extend the period, in order that the local board might conform with the order made by his Honour. It was not until September 22nd, 1887, that the order was made peremptory. Counsel urged that pollution was still continuing, and that the plaintiff authority had been put to great expense in cleaning out the river, expense which the local board should be made to bear. Mr. J. R. Sisterson, surveyor to the plaintiff authority, deposed that he had taken samples of river water which contained crude sewage. Cross-examined: In 1885 the plaintiff authority spent over £700 in cleansing out the river. The river had never previously been cleaned out. The river was worse below the effluent than it was above. Mr. Whitehorn, assistant surveyor to the plaintiff authority, corroborated Mr. Sisterson. Dr. Angell, analyst for the county of Hampshire, said he had examined the samples, and generally they were dangerous effluents, and it would be dangerous to allow them to run into the stream. From the analysis he did not think the board's sewage was treated chemically, and certainly not in an efficient manner. Cross-examined: He would be very much surprised to hear that 12cwt. of lime was used daily at the board's sewage works. Further, lime by itself was not a successful treatment, and had been known to create greater nuisances than it was intended to prevent. Lime with other chemicals was much better. He was consulting chemist to the International Water and Sewage Purification Company, and advised the patentee in the matter. The company's process was by chemical precipitation combined with filtration. He knew that the local board had been in negotiation with the company in which he was interested, and of course the more that company's process was adopted the more fees he obtained. For the quantity of sewage to be dealt with by the board, 12cwt. of lime and 2cwt. of alumino ferric would be a very good process if properly carried out, but their levels were too low, and dry land was better for the purpose. He always recommended the process patented by the International Company. Counsel warmly commented upon the connection of Dr. Angell with the company. The plaintiff authority relied upon the prejudiced evidence of Dr. Angell, who was the "father" of the International Company. His Honour: You are charging the plaintiff authority with odious conduct, and you also make charges against Dr. Angell. I think you might argue the case very differently to that. For the defence, Mr. Rushford, surveyor to the defendant board, described the sewage works and the process of treatment. Cross-examined: He could not say that the International process was better than the process at present adopted until the former was tried. Professor Attfield, with 30 years' experience of the chemistry of sewage, detailed results of analysing samples sent him by the local board in 1888 and 1890. As for the analysis detailed by Dr. Angell, witness thought it was entirely impossible to meet with the quantity of solids in suspension as stated. This was an impossible analysis, not through the fault of the analyst, but because the collection had been badly performed. He looked upon the process adopted at Aldershot as satisfactory. He had met at Aldershot with "strong" sewage. Major Tulloch, chief engineering inspector of the Local Government Board, also gave evidence of the process at Aldershot, and which, he said, was carried out in a large number of towns, and was favoured by engineers. As a result of an inquiry,

however, he had withheld a certificate, because the sewage was not purified sufficiently. He was satisfied that the board were doing the best they could, and advised a different chemical process—viz., the International Company's process. His Honour said, after hearing the evidences of Major Tulloch, he thought the Local Board should have longer time; it was a difficult and expensive matter. He did not think he ought to impose penalties, but the Board must do something. Major Tulloch said a year would be necessary for the Board to try experiments, and his Honour accordingly adjourned the case for a year, and suspended the costs over that period.

In re Clark and Ward.—The creditors of Charles Wm. Clark and Ralph Collinson Ward, joiners and builders, Foss Islands, York, held their first meeting last week. Clark had, it was announced, absconded, Ward only being present. So far as could be ascertained, stated the Official Receiver, the debtors' gross liabilities totalled £4,174 18s. 2d., which included £3,200 as the value of security of creditors partly secured, leaving £500 to rank against the estate for dividend. Unsecured liabilities were put down at £975 18s. 2d. The estimated production on assets was £225 15s. 6d. after deducting creditors' wages, the deficiency remaining being £750 4s. 8d. The stock had realised a little over £200. Debtors were adjudicated bankrupts.

Claim against a Contractor.—Enoch Wyatt, farmer, Mount Boone, Dartmouth, sued R. Rowe, contractor, Dartmouth, at Churston County Court, on Sept. 21st, for £15 15s. damages for injury done in January last by defendant carting building materials across some land, and failing to repair a road in accordance with contract. There was a counterclaim for £23 damages sustained in alleged breach of contract. Plaintiff's case was that last year a racquet-court was built for the *Britannia*. A contract was entered into by the Admiralty with the defendant to do the work. Plaintiff agreed with the Admiralty to £5 compensation for cartage of materials over his land, the road to be kept in repair. Defendant neglected to repair the road, and witness locked the gates. Mr. T. O. Veale, borough surveyor of Dartmouth, called by plaintiff, said it would take from £10 to £15 to put the road in order. It was stated, for defendant, that the reason why the Admiralty declined to pay the money was that plaintiff had broken the contract by closing the gate upon defendant. Defendant was not to repair the road until after he had finished using it; but plaintiff stopped him before that. Defendant said that in consequence of plaintiff locking the gates he had to construct, at a cost of £20, a tramway through a quarry to convey the materials. Mr. E. H. Back, surveyor, said £2 or £3 would put the road in as good repair as it was previously.—His Honour gave a verdict for plaintiff for £10 10s. and costs, and for plaintiff on the counterclaim.

Compensation Case in Huddersfield.—An arbitration case was heard last week in Huddersfield town hall before Mr. S. Jackson, architect, of Bradford, to consider what compensation should be given Mr. Frederick Learoyd, the owner of a brick factory situated in John William-street, Huddersfield, by the Corporation, who are taking part of the property for street improvements. As usual, the value set on the property by the surveyors called on either side showed marked discrepancies. It was stated that the property, which was freehold and 4,200 square yards in extent, was purchased by Mr. F. Learoyd in 1874 for £10,750, and he afterwards paid £444 for streetage charges, making a total of £11,194. The corporation in the following year scheduled the property for improvements, and obtained powers in the Acts of 1876 and 1890 (the first having lapsed) of compulsory purchase. The corporation offered £7,590, and the claimant asked £13,000. For the claimant, Mr. Thomas Fenwick, F.S.I. (Martin and Fenwick, of Leeds), valued the property at £12,675; and Mr. James Kilburn, of Meltham and Huddersfield, endorsed this valuation. Mr. Henry Tinker, of Huddersfield, who sold the property to Mr. Learoyd, valued it for sale in 1873 at £14,800, and now thought it worth more than £12,675, but after consideration had come down to Messrs. Fenwick and Kilburn's figures. For the corporation, Mr. George H. Crowther, Huddersfield, valued the property at £6,979 12s., without reckoning compulsory purchase. Mr. Thomas Albert Taylor, Huddersfield, put the value at £6,808 19s. Mr. Albert Kirk (John Kirk and Sons, Huddersfield and Dewsbury) endorsed Mr. Crowther's valuation. Mr. John Hepper (Hepper and Sons, Leeds) estimated it at £6,906, and Mr. Joseph Smith (Smith and Gotthardt, Bradford) at £6,931. While for the claimant the borough auditor, Mr. Kilner, stated the property was increasing in value, Mr. S. C. Potts, borough accountant, now stated that 16 per cent. of the property in the neighbourhood of the brick factory was unoccupied. The arbitrator reserved his decision.

Employers' Liability. — At the Brompton County Court, on Tuesday, before Judge Stonor, a lighterman named Henry Arnold sued Messrs. Williams and Wallington, the contractors for the Battersea new bridge, for damages for personal injuries sustained by an accident which happened at the works. The plaintiff had taken some balks of timber to the bridge, and they were being raised by cranes, when, owing to insufficient fastening, they fell into the river, smashed the boat, and severely injured the plaintiff's right arm. He was in hospital several weeks, and it was found necessary to stitch his injured hand to his side, so that some of the flesh from his body might grow over it. The evidence as to the accident showed that the chain put round the balks was not tight. The man in charge called out "Ease up the slack," so that the chain might be tightened, but the signal "Right away" was given instead, and the balks were lifted into the air before the chain was properly put on. On behalf of the defendants a case was cited which had been before the Court of Appeal, and in which a man who usually superintended gave an order to a crane man, and thus caused the accident. At the time he gave the order, however, he was engaged in manual labour, and on this ground a verdict was given for the employers. In the present case the banksman who gave the signal was a labourer, but at the time he gave the order was superintending only, and was not engaged in manual labour. After a long legal argument, the Judge ruled in favour of the defendants, and withdrew the case from the jury on the point of law.

Peto Brothers v. Apperley.—In the Chancery Division, on Wednesday, and again yesterday (Thursday), before Mr. Justice Jeune, the plaintiffs moved to continue an interim injunction, obtained on September 23, *ex parte*, restraining the defendant from printing, posting, or otherwise advertising a bill calling on carpenters and joiners to keep away from Cane-hill Asylum. The affidavit of the plaintiffs went to show that the effect of the bill was, and would be, to keep away carpenters and joiners. The affidavit of the defendant was that during the present year a number of London firms locked out the carpenters and joiners, and that the plaintiffs were among those firms. Although there was not a lock-out at Cane-hill, there was at the plaintiffs' works in Gillingham-street, Pimlico. The present action was brought and the motion made on the ground that the defendant's act was in restraint of trade. Mr. Eustace Smith appeared for the plaintiffs; Mr. Fischer, Q.C., and Mr. Besley for the defendant. The case was adjourned till to-day (Friday).

CHIPS.

The Wood-Block Flooring Co. have removed their London office from 22, Charing Cross, S.W., to 11, Queen Victoria-street (Mansion House Chambers), E.C.

The architectural profession has been honoured in Liverpool by the appointment of an architect upon the bench of city magistrates. Since the death of the late Sir J. A. Picton, architecture has not been so represented. The architect selected is Col. C. O. Ellison, Past President of the Society of Architects.

The Devizes urban sanitary authority have resolved to erect two additional wards to the Infectious Diseases Hospital, at an estimated cost of about £400.

An inquest was held on Thursday on Mr. George Barr, wholesale cabinet manufacturer, of Curtain-road, Shoreditch, aged 51, who died in his bed on Wednesday morning, while playing with a grandchild. Medical testimony showed that death resulted from heart disease, and the coroner mentioned that a son of the deceased fell dead from heart disease about eight months ago.

Contracts have been entered into for banking premises in North-parade and Manor-row, Bradford for the Yorkshire Penny Bank. Mr. Jas. Ledingham, of Bradford, is the architect.

The Bishop of Colchester dedicated on Friday a new organ, which has been placed in Brentwood parish church as a memorial of the late Rev. C. A. Belli, formerly precentor of St. Paul's Cathedral, who gave upwards of £10,000 towards the rebuilding of the church, a work carried out a few years since under the direction of the late E. C. Ayton-Lee.

The statue of Earl Granville will be erected in the Central Hall at Westminster. Upwards of £2,000 has been subscribed for the statue, and the artist is to be Mr. Hamo Thornycroft, R.A.

The frescoes which have just been discovered in the Church of the Angels at Lugano adorned the walls of a chapel. They belong to the Luvain School, and represent the Flight into Egypt, the Adoration of the Magi, and the Nativity. The Government have decided to restore the paintings, and to intrust the work to Signor Masella, the architect.

WATER SUPPLY AND SANITA MATTERS.

The Aberdour-Inverkeithing Water Dis —The terms have now been adjusted for a s ment of the dispute between Aberdour and I keithing as to their water supply. It is pro that the present litigation be superseded; that remitted to Mr. R. Carstairs Reid and Mr. Parker, two of the skilled witnesses, to dete what new works, or alterations upon the p works, ought to be executed, for the purp securing to both parties a full and adequate s of water; and that the whole expenses of the to be so determined, and also the expenses inc by both parties in the litigation, be borne mut in the proportion of seven-tenths by Inverkei and three-tenths by Aberdour.

Castle Donnington Sewerage.—The Shar guardians lately advertised an open competitio the best scheme for the sewerage and sewage posal of Castle Donnington. Mr. W. H. Rad C.E., of Nottingham, has just been awarde first premium, and a vestry meeting of the payers will shortly be held to consider the d bility of carrying out the scheme at once. population is about 2,500, and it is propos deliver the sewage by gravitation on to ten ac suitable land, where it will be purified by i tion. The storm-water from roads will n admitted to the sewers. Part of the outfall will consist of an iron pipe siphon 750 yards The cost of the engineering works is estima £2,300.

Halifax.—On Thursday, the 17th ult inquiry was held by Mr. J. T. Harrison, a spector of the Local Government Board, a Halifax Town Hall, in reference to the applic by the Corporation for sanction to borrow £3 for the purpose of street improvements; £2 for works of sewerage; £7,000 for baths at W side, Haley Hill; £4,000 for the purchase of Vue Mansion for use as a free library, and £5 for the construction of new markets. Plans o baths were shown by the architects, Messrs. Ho and Williams, and of the markets by M Leeming and Leeming, the designs in both having been selected in competition. The insp stated that the Local Government Board w probably refuse to sanction any loan on behalf free library.

Metropolitan Water Supply.—The Sp Water-Supply Committee of the London Co Council has prepared a report on the proceed in Parliament on the Water Bills of last Se They recommend the County Council to adop following resolutions:—1. That the council, w expressing its readiness, so far as its legal po enable it to do so, to undertake the duties obligations mentioned in the 1st, 2nd, and 5th recommendations in paragraph of the report of the Select Committee unable to accept the condition contained i 3rd recommendation, that the Council, if stituted the water authority, should be req to purchase the undertakings of the eight companies "by agreement, or, failing agreem by arbitration, within a fixed period." 2. the Council is prepared to accept and act upo following recommendation, contained in the r of Sir William Harcourt's Select Committe Water Supply—viz., "That for certain purpo least it would be desirable to acquire the u takings of the existing companies, if the same be obtained on fair and reasonable terms." That the Council is of opinion that the pr be given for the undertaking of any com should depend, not merely on past dividends Stock Exchange values, but upon the true val the undertaking, having regard to its legal po and liabilities; to the condition of the prop and to its ability to supply future wants. 4. in order to arrive at a satisfactory conclusio this last question, it is essential, before any of purchase can be considered, that the liabilit capital expenditure for new or supplemen sources of supply in the immediate future sh be authoritatively ascertained.

Shrewsbury.—Owing to the necessity fo improved water supply for the borough to mee needs of the inhabitants, steps have recently taken by the Water Committee of the Town Co for augmenting the supply, and with this alterations have been made at the works, and machinery provided by Messrs. James Simpson Co., Pimlico, S.W. The new machinery comp vertical Worthington pumping-engine, with pu valves, and pipes, together with a Lanca double-flued boiler, with all mountings and con tions to the engine. The head of water which the pumps will work is 200ft., and they be capable of raising 1,000,000 gallons in tw hours from the well into the existing delivery which is about 900 yards long. The new machi which has been constructed under the superv of Mr. W. C. Eddowes, borough surveyor, formally started on Thursday in last week b Mayor.

STATUES, MEMORIALS, &c.

ST. ALBAN'S CATHEDRAL.—During last week, two new figures were placed in the niches at the back of the screen. The figures are full size, and that occupying the niche at the south side represents St. John the Baptist, clothed with a garment of camel's hair, and his mantle is thrown over his shoulder. In one hand he grasps a cross, and with the other points to the central figures—the Virgin and Child. The central sculpture is the newer new figure. It represents the Madonna holding the infant Saviour in her arms; the child with his arms extended in the form of a cross. The figures, which were carved by Mr. Harry Hems, of Exeter, are executed in yellow Mansfield stone. Preparations are also being made for the erection of a cross on the vacant cruciform space on the front of the screen. The cross will be of plain yellow stone, with angels at the side supporting; the latter will be of clunch stone. The cross will be supported on a cap and base, and will stand 3in. from the face. The dimensions are 11ft. by 5ft. 4in., and will be placed in three sections.

STAINED GLASS.

BRADFORD.—A stained-glass window has been placed in the Unitarian Church, Bradford, in remembrance of the late Mr. Joseph Hainsworth, of Lidget-green. The subject represented is Christ's Sermon on the Mount, to illustrate the text "Wherefore by their fruits ye shall know them." The work is from the studio of Messrs. Powell Bros., 30, Park-square, Leeds.

WEST BOWLING.—Mr. Jesse Galloway, of Bowling Old-lane, has presented to St. Stephen's Church, West Bowling, two more stained-glass windows in addition to the east window given by him some time since. These last windows are designed to continue and complete the series of subjects as originally selected in illustration of the Passion of Our Lord. The Messrs. Powell Bros., of Park-square, Leeds, are the artists.

CHIPS.

Mr. C. H. Mabey, sculptor, has removed his studio and workshops from Princes-mews, Westminster, to more convenient premises, 150A, Vauxhall Bridge-road, S.W.

Yesterday the new bridge over the Kelvin at Great Western-road, Glasgow, was formally opened by the Lord Provost of Glasgow. The construction of the bridge has cost £45,000. The bridge consists of four arches, two of 91ft. each across the river Kelvin, and two land arches of 34ft. each. The three piers are of stone, the abutments and wing walls being faced with grey Kemnay granite blocks, while the pilasters are of red Corrennie granite. The arches themselves are of iron, with geometric tracery in the spandrels, and there are also open iron parapets. The width of the bridge is 60ft.

The new schools at Walshaw, near Bury, are being warmed and ventilated by means of Shorland's patent Manchester grates, the same being supplied by Mr. E. H. Shorland, of Manchester.

By public subscription a timepiece with one slate dial has just been erected in the Baths, Aberdeen. The work was intrusted to J. B. Joyce and Co., of Whitchurch, Shropshire.

The opening lecture of the session in connection with the classes in Architecture, Construction, Architectural Drawings, &c., at University College, London, will be delivered by Professor T. Roger Smith on Monday evening next, the 5th October, at 7.30 p.m., at the college in Gower-street, subject, "New Departures in Architecture." The lecture will not only touch upon the past, but upon the possible future of architecture. Admission free and without tickets.

The National Health Society has again organised winter courses of lectures on sanitation, domestic and personal hygiene, and other subjects. These lectures will be given in the lecture-room of the Society, 53, Berners-street, W., by the society's staff of lecturers, each being illustrated by diagrams and models.

New science and art schools are to be erected at Lancaster, on the site of the Mechanics' Institute and some adjoining buildings, all of which are being razed to the ground. The new schools will be Renaissance in style, and will have frontages of 60ft. to Meeting House-lane and 43ft. to Market-street. Besides schools the building will provide accommodation for the museum, library, and art gallery. Messrs. Paley, Austin and Paley, of Lancaster, are the architects.

The second, or Ince, section of the Manchester Ship Canal, from Ellesmere Port to the River Weaver, was opened on Tuesday. By the completion of this section of the canal there are now opened eleven out of a total of thirty-five miles of waterway between the Mersey and Manchester.

Our Office Table.

THE committee of the Architectural Association having considered the applications received for the four vacant A.A. scholarships, have awarded them as follows:—Two scholarships, value £10 10s. a year each, tenable for two years, and eligible to students entering the first year, awarded to E. A. Rickards, Dunn and Watson, principals, and to Arthur J. Stratton, A. E. Street, M.A., principal. Two scholarships, value £10 10s. a year each, tenable for two years, and eligible to students entering the third year, awarded to W. C. Waymouth, H. C. Boyes, principal, and to C. C. Windmill, J. T. Newman, principal. Mr. Arthur Cates has founded a scholarship, value £10 10s. a year, which will, upon certain conditions, be awarded to the student who passes highest in the intermediate examination. The A.A. medal, given this year for designs for a country house has been awarded to the competitor under motto "Nihil Sine Labore." It is by no means a pleasing sign of the times that the Architectural Union Company's prize for measured drawings has failed to attract any competitors.

THE annual report of Mr. James P. Norrington, surveyor to the Fulham vestry, states that the parish is rapidly increasing in population, as shown by the census returns, the number of estates that are being laid out, the length of new sewers laid, and the fact that nearly a thousand plans of new buildings were submitted for approval. During last year the largest wood-paving contract yet undertaken by the vestry was carried out, being that of the Fulham-road, 1 mile 140 yards in length. On Mr. Norrington's advice the vestry adopted creosoted deal blocks for the Fulham and North End roads instead of plain deal. He urges the importance of laying out the 12 acres known as Bishop's Meadow and West Meadow as a park without further delay, the land having been allowed to remain in its present discreditable condition, with the area being decreased by the action of the river, since the original grant in 1884, and the Ecclesiastical Commissioners have threatened to reconsider the question of the grant, unless the vestry evince more earnestness in accepting the trust.

AT the closing meeting of the annual Congress of the Sanitary Association of Scotland, which was held last week in Edinburgh, under the presidency of Dr. R. Farquharson, M.P., a resolution was moved by Dr. Southwood Smith, of Motherwell, supported by Dr. E. Duncan, of Glasgow, and Mr. Kenneth Cameron, of Aberdeen, declaring it to be necessary to the preservation of the public health that plumbers should be systematically trained and registered under adequate statutory powers. The resolution was carried unanimously, and remitted to the Parliamentary Committee of the Association to consider, and to petition in favour of any Bill promoted with those objects.

FOLLOWING on the exposures of corrupt practices in high places in Canada, the newspapers of New York have recently been filled with letters of complaint about the ease with which the deputy inspectors of buildings in that city are bribed. It is asserted that these officials multiply the difficulties and delays incident to the passing of plans, and the approval of executed constructions, for the purpose of extorting fees for accelerating the examination of plans, or closing their eyes to irregularities in construction. Whether the evil is exaggerated or not, it is evident that the deputy inspectors of buildings in New York and other United States cities are poorly paid for very laborious, difficult, and responsible work, and an occasional yielding to the temptation to accept a small present for an endeavour to oblige would not be very surprising. The *American Architect*, in commenting on this correspondence, remarks that New York is too large to have only a single office for such matters. Our contemporary suggests that it would save time and labour, besides promoting security, to adopt the London plan, by which the city is divided into districts, and some experienced architect in each is made district surveyor.

An arcade containing nearly a hundred shops is being erected at Weston-super-Mare, and will form, when completed, one of the leading thoroughfares in that watering place. Mr. H. A. Forse, of Bristol, is the contractor.

MEETINGS FOR THE ENSUING WEEK.

MONDAY.—Society of Engineers. "Retort Charging and Discharging Machinery for Gas Works," by H. O'Connor. 7.30 p.m.

TUESDAY.—Glasgow Architectural Association. "Structural Ironwork," by Andrew Robertson. 8 p.m.

Trade News.

WAGES MOVEMENTS.

EDINBURGH JOINERS' ASSOCIATION.—A joint meeting of the five branches of the Joiners' Associations in Edinburgh and Leith took place on Friday evening in the Trades' Hall, Edinburgh, to hear the reply from the Masters' Association to the representation of the workmen regarding the proposed code of working rules. Some of the modifications proposed by the workmen were accepted. In regard to the payment of wages, the employers adhered to their proposal to pay fortnightly, instead of weekly as proposed by the men. Another proposal had reference to the hours of work, the men desiring that from 8th November till 8th February they should work an eight hours' day. The employers' proposal is gradually to reduce the hours of work from nine in summer to seven in winter, and they adhered to their scheme. After discussion it was agreed to confer further with the masters regarding the proposals.

FORFAR.—The master slaters here have resolved to grant an advance of ½d. per hour to their men. The rate of wages now paid in Forfar is 7d. per hour.

THE LONDON CARPENTERS' STRIKE, now in its twenty-second week, presents few new features of novelty. The demonstration of all branches of the building trades held on Sunday afternoon in Hyde Park was very numerously attended, and the resolutions put simultaneously at all four platforms were adopted unanimously, and by acclamation. The first of these declared that the carpenters, joiners, and machinists were deserving of sympathy and support in their struggle, both morally and financially; and the second expressed indignation at the unjust sentences passed on workmen when following their lawful right to picket, and demanded the dismissal of Sir Peter Edlin. The United Trades Committee are increasingly confident of ultimate success, as they are receiving pecuniary support from levies in the other trades, while on Monday the earnest of the promised subscriptions from America came to hand, the first fruits taking the form of a donation of £50 from No. 3 branch of the Amalgamated Society of Carpenters and Joiners in New York, with an undertaking to make a similar levy weekly till the strike ends. Other subscriptions are expected from United States, Canadian, and Australian societies, and it is expected that the strike pay will be raised by sixpence or a shilling per week. Among the firms which have conceded the terms of the memorial during the week is Messrs. Marks. A meeting in support of the movement is to be held to-morrow (Saturday) afternoon in the Haymarket, Newcastle-on-Tyne, Mr. E. Fenwick, M.P., being the principal speaker. Several carpenters have been dealt with on charges of picketing and intimidation during the week. On Saturday, Robert Meade, carpenter, was sentenced by Mr. Shiel, at Westminster police-court, to two months' imprisonment for an assault on a constable at Sloane-square railway-station, resulting from the pursuit of a blackleg to that building; and on Monday, at the Middlesex Sessions, John Bratley was bound over by Mr. Underhill in £50 to keep the peace for 12 months, on an indictment for having assaulted and persistently followed Thomas Saxby, a carpenter employed by Messrs. King and Co., of Pimlico.

NEWPORT MON.—The dispute as to whether 7d. or 8d. per hour should be paid by employers of bricklayers was inquired into by the referee at Newport on Tuesday. The men, after nearly a two months' strike, resumed work on the employers' terms of 7½d., on condition that the remaining half-penny be referred to arbitration. The representatives of the employers urged that 7½d. should be paid during the summer months, and 8d. in the winter. The men's representatives argued for a wage of 7½d. per hour both winter and summer. It was to settle this point that the services of a referee had to be called in. He took a copious note of the entire information adduced, and at the close of the hearing decided to take time to consider his decision.

RHYL.—The joiners, who struck work at Rhyl on Tuesday week, to the number of 50, on account of a misunderstanding with their employers, resumed work on Saturday at an increase of 2s. (30s. instead of 28s.) and a reduction of three hours per week in time (55 in lieu of 58 hours).

Penge has, by a majority of 1,025 votes to 275, decided to adopt the Free Library Act.

[illegible] been started to raise funds for [illegible] of the interesting little thirteenth-[illegible] of Oake, Somerset.

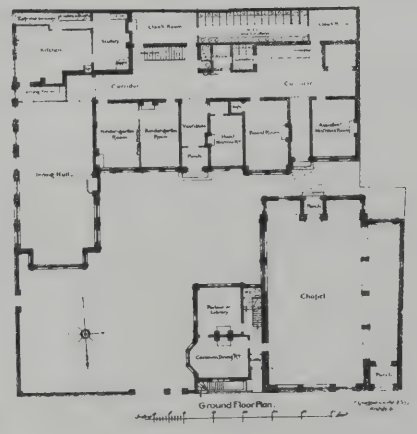
[illegible] Kensington rests on [illegible] gravel-[illegible] says the *West London Inquirer*, [illegible] family. The rise of the [illegible] story. Sir Thomas Freake's [illegible] by laying up the waste [illegible] and making good [illegible] and [illegible] a [illegible] widow, who is still alive, got [illegible] use of the big South Ken-[illegible] which he was, [illegible] Sir [illegible] got all that it was [illegible] The rest of [illegible] [illegible] ground-[illegible] This will be in 1917, and [illegible] will then be [illegible] [illegible] [illegible]

BISHOPS-GATE SCHOOL FOR GIRLS.

T. CHATFEILD CLARKE & SON, ARCHTS



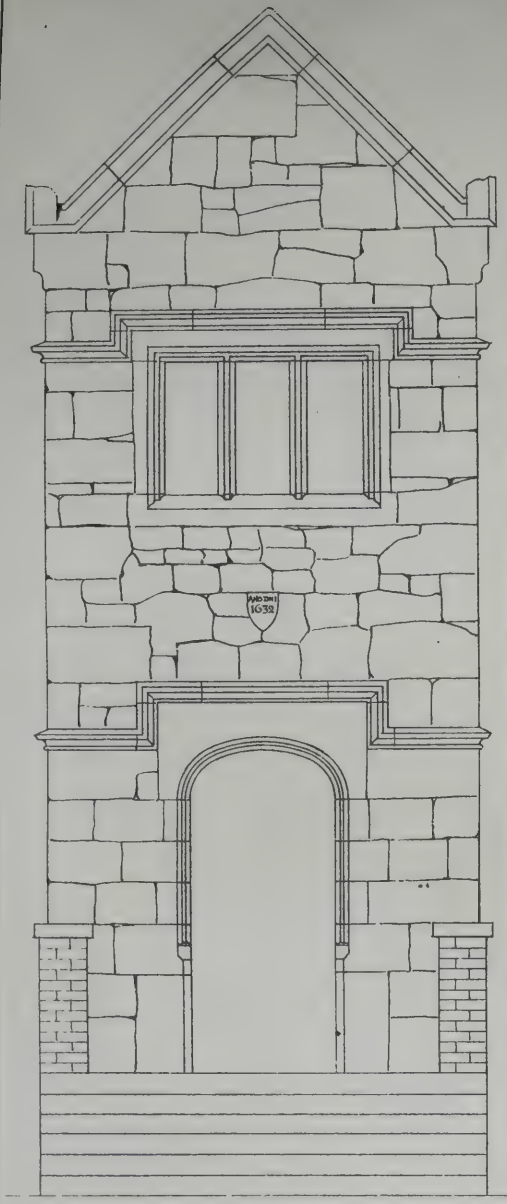
First Floor Plan



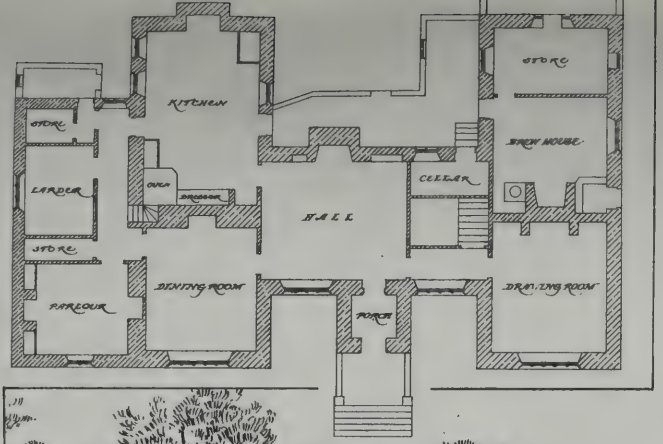
Ground Floor Plan.

THE MANOR HOUSE · ARRETON · I·OF·WIGHT·

DRAWN BY PERCY·G STONE ARCHT FRIBA



ELEVATION OF PORCH

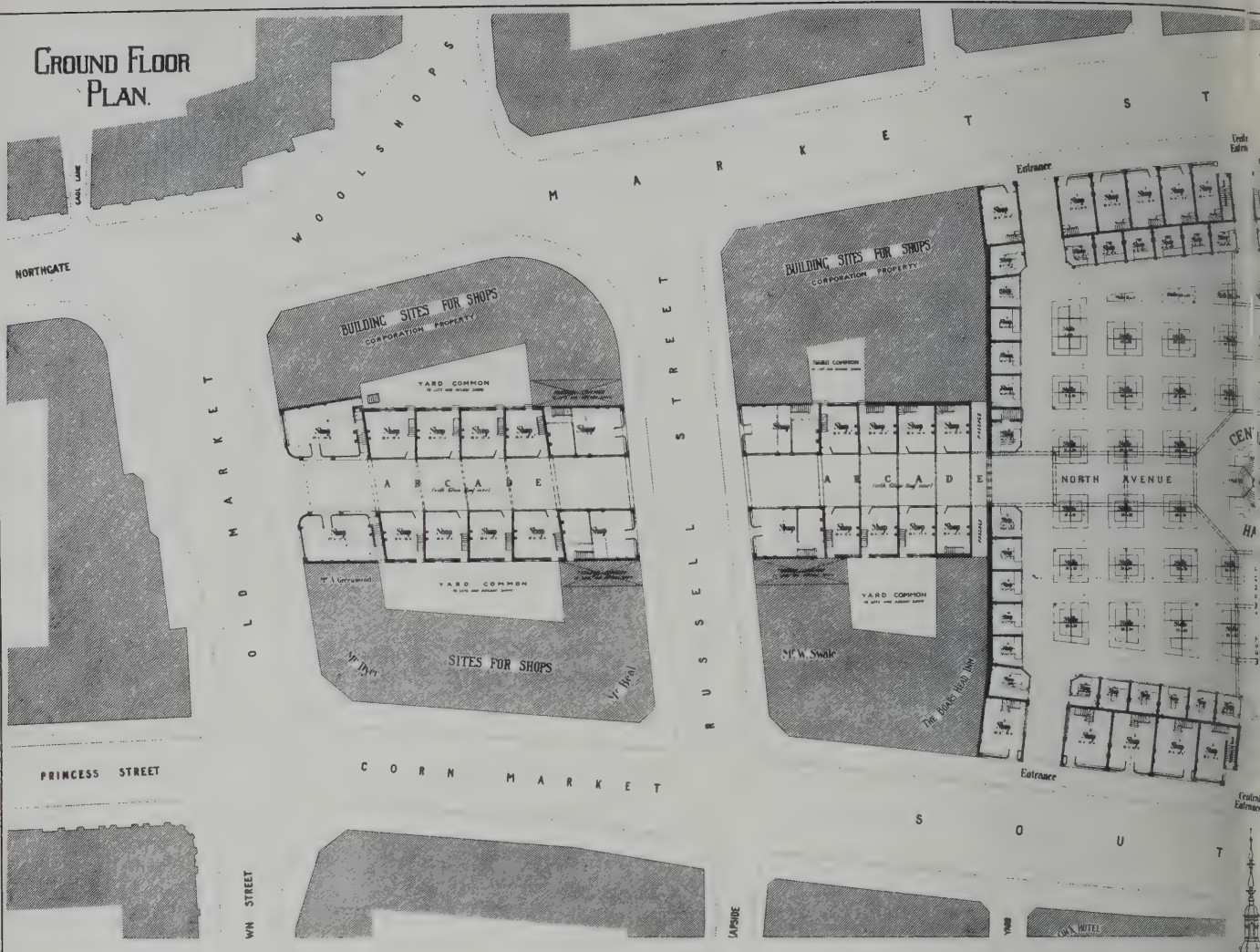


PLAN



Photo Lithographed & Printed by James Akerman, 6 Queen Square W C

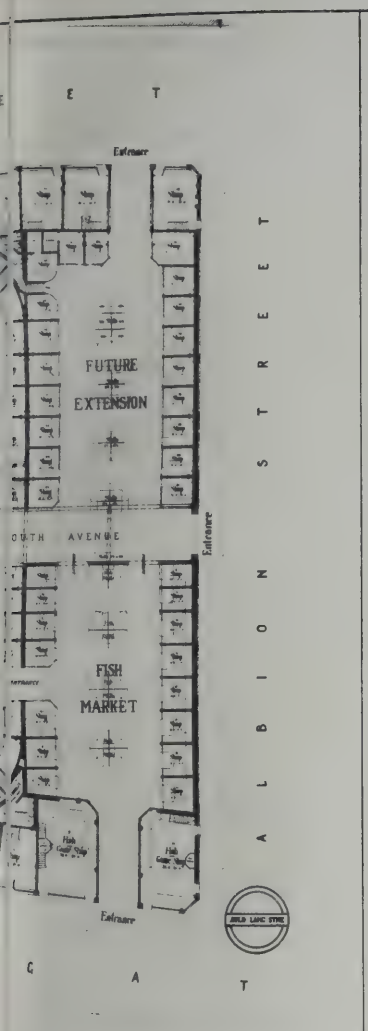
GROUND FLOOR PLAN.





ENTRANCE — CENTRAL

SELECTED DESIGN, — WEST ELEVATION





ELEVATION TO OLD MARKET

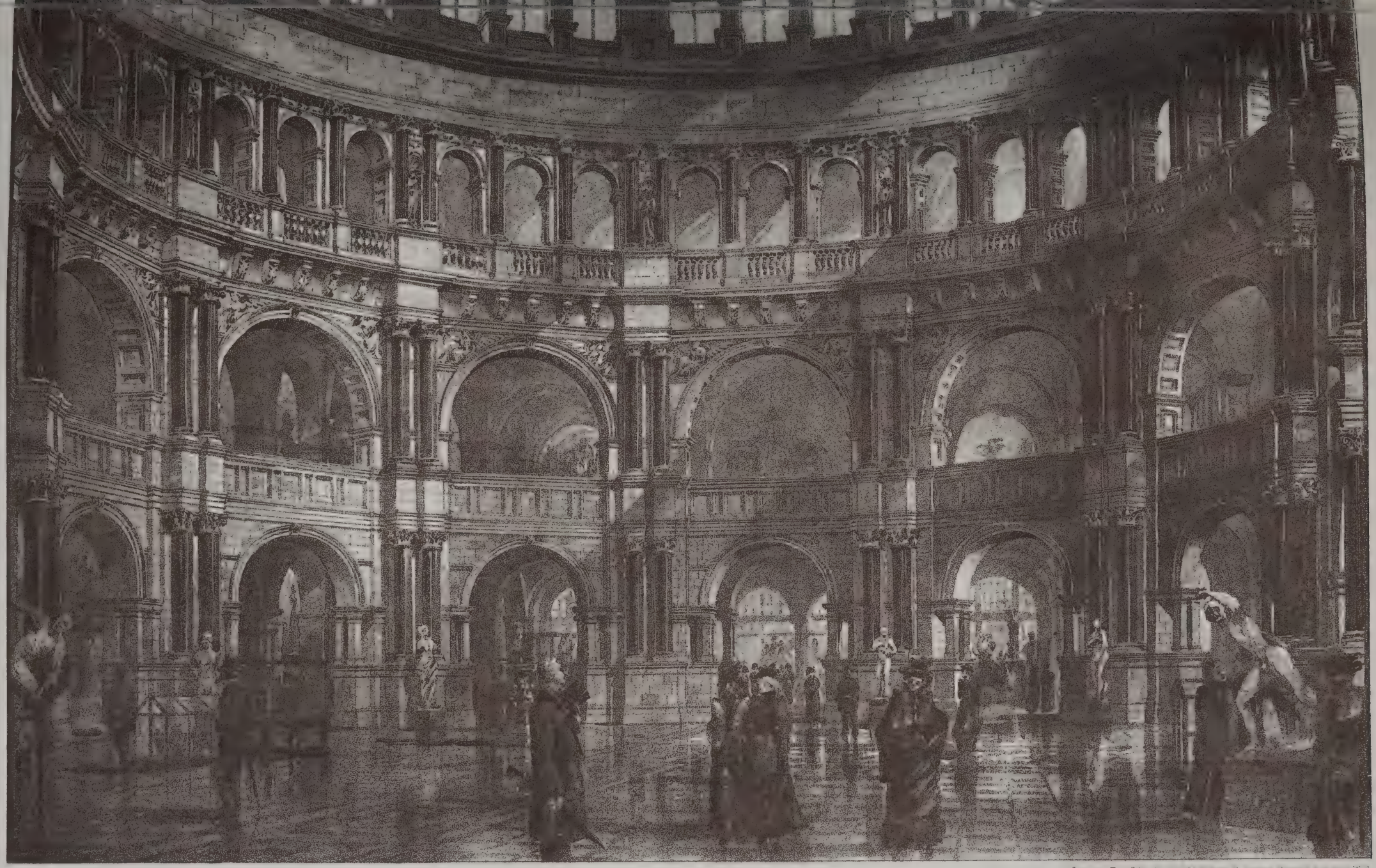


SOUTHGATE

LEEMING & LEEMING, ARCHITECTS.

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"PHOTO-TINT," by James Akerman & Sons, Clarges Street, London, W.

SOUTH KENSINGTON MUSEUM COMPETITION, INTERIOR OF CENTRAL HALL.



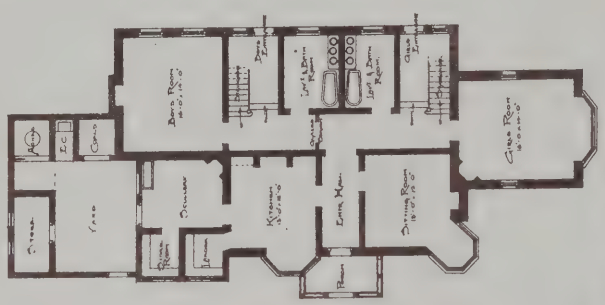
COTTAGE HOMES WEDNESFIELD
NR WOLVERHAMPTON. GEO: H. STANGER: ARCHT:

SUPERINTENDENT'S RESIDENCE
LODGE & PROBATIONARY WARDS



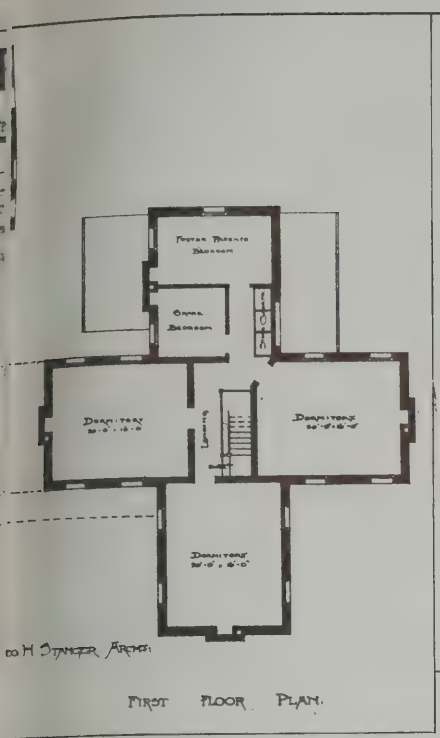
COTTAGE HOMES

GROUND PLAN.



COTTAGE · HOMES · W
GEO





FIRST FLOOR PLAN.



THE HOMES
COTTAGE HOMES WEDNESFIELD.
NR WOLVERHAMPTON: GEO: H: STANGER: ARCHT:

D·NR·WOLVERHAMPTON·
ARCHT



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THE BUILDING NEWS
AND ENGINEERING JOURNAL.
VOL. LXI.—No. 1918.
FRIDAY, OCTOBER 9, 1891.

SCALE AND SKYLINE.

SIZE and outline constitute two of the leading circumstances of buildings. They impress us more than a multitude of lesser qualities. The traveller is impressed by the greatness of edifices like St. Peter's at Rome, the magnitude and grandeur of façades like those of Chartres and Rheims, the Louvre, St. George's Hall, Liverpool, and St. Paul's. The mass strikes the spectator before the parts or details of which it is composed. But we judge of each of these buildings not so much by its actual size as its relation to other structures in its immediate neighbourhood, and it is this relative size which we call "scale." To what an extent this scale or proportion operates in our architecture may be noticed by comparing the windows or other features of one building with those of another, especially when they happen to adjoin. The larger the openings are in one building, the smaller those appear in the adjoining one. Insignificance and pettiness of detail are often owing to this unfortunate comparison in dimensions. A proper scale or proportion of features is one of those things which the competing architect is apt to forget when he designs a public building for a site which is full of large and imposing edifices. Not knowing the "scale" or size of the adjacent structures, or imagining that the proposed building will be larger, he adopts perhaps a very ornate Gothic façade full of small parts and windows. Pinnacles, gables, and angle-turrets abound. Let us imagine such a building set up beside, or near to, a Classic town-hall like that of Birmingham or St. George's Hall, Liverpool. The comparison would be disastrous, if not odious." The small windows and details would be at once reduced in size, the ornate parts, the turrets, and gables would become toylike and tawdry. On the contrary, the classic edifice, with its few dignified divisions, is at once enhanced by the scale of small parts of the Gothic set up beside it; it looks really imposing.

We refer to this question of "scale" as one that concerns the architecture of our towns. The mania for huge buildings, lofty hotels, and residential flats and offices, partly brought over from the United States, and partly owing to the increased value of ground rents, is destined to spread. The houses of four and five stories of moderate height are giving place to blocks of houses and shops of considerably greater elevation, which completely dwarf the older dwellings and business premises, and render them no longer tenerable to live in, overshadowed as they are by monster premises adjoining or in front. These prodigious blocks meet the eye in many parts of the Metropolis. We see single blocks of this kind in the Gray's Inn-road, not far from Clerkenwell-road. A little farther westward, between Oxford-street and Broad-street, red brick buildings of considerable elevation are seen, which grow into insignificant contrast the older and smaller houses near. Oxford-street presents several huge fronts, which materially serve to diminish in scale the other street premises. In the Brompton and Fulham roads we meet with many large blocks of buildings of recent erection that have thrown into comparative insignificance the old houses. Our remarks receive a more perfect exemplification from several recent structures erected facing the Victoria Embankment, which have mainly suggested this subject. We take that portion of the Embankment between Waterloo and Westminster Bridges. Here we have five or six gigantic buildings of considerable elevation, though their size is less apparent now they are ranged within a short distance of each other, and have, to a certain extent, obscured the older houses behind them. On the site of the National Opera House is erected the granite and red brick block of New Scotland Yard, a massive and solid-looking structure of considerable bulk, that immediately it was roof-high reduced to toy-like proportions St. Stephen's Club, which till then was an edifice of some pretensions to size. Beyond the home of the detective force is the huge pile of palatial elevation between Whitehall and the Embankment and fronting the Gardens, let as residential flats, and known as Whitehall Court, designed by Messrs. Archer and Green. This is a stone-fronted building, well broken and grouped in its masses and roof line. The four pyramidal pavilion roofs of green slates break pleasingly, and make an agreeable skyline, especially when seen in perspective from the Embankment Gardens. This extensive pile adjoins, and works in with as a composition, Mr. Waterhouse's National Liberal Club, the polygonal tower of which terminates the acute angle formed by Whitehall-place. The unsightly corner between Northumberland-avenue and Whitehall-place, the Hotel Metropole, and the corner formed between Craven-street and the avenue, with the Charing Cross Terminus, make a break in the frontage, after which we come to the monster hotel between Salisbury and Cecil-streets, with its end pavilions and domical roofs in course of construction fronting the garden of the Embankment, and forming part of the Salisbury Estate scheme. Next to this structure, which is of red brick and stone, follows the Savoy Hotel, and the Medical Examination Schools adjoining Savoy-street. These three last-named structures vary in size, and, as seen from Waterloo Bridge, make three great steps in the skyline, completely throwing out of scale the older terrace of houses known as the Adelphi-terrace. The latter, compared with the colossal hotel which is being constructed next it, is completely dwarfed. Not long ago the Adelphi-terrace was a stately row of houses, imposing by its elevated situation overlooking the Thames; it appears now in distance quite a diminutive terrace. As a study of relative scale, this group of old and new buildings is at least instructive. A large many-storied structure must, of necessity, be larger in its parts: each separate story is higher, the windows are larger, and this increase in size in the parts tends seriously to diminish private dwellings, and to reduce them to comparative insignificance. But the stories are not only higher in themselves: they are multiplied also, making a greatly increased elevation. The result of this twofold increase of magnitude is to produce a kind of paradox in the mind of the observer, and to make him almost imagine that a larger specimen of humanity inhabited these more colossal buildings. Doors, windows, stories are all magnified as if they were intended for a Brobdignagian race.

The older buildings in our streets are rapidly falling out of proportion by the erection of these lofty structures. We should not object so much if, with their greater height and proportion, we could widen our thoroughfares at the same time; but this is impossible: we have to submit to the inevitable craze for monster hotels and residential chambers, such as those which now overpower the few small and quiet-looking houses in Arundel-street, Surrey-street, and Cecil-street. Here we find the old brick fronts of four stories not reaching more than half way up the adjoining warehouse or hotel, appearing, in fact, crushed. One of the ground stories of these large structures extends to the third story window of the house adjoining. The matter is one that concerns the architect engaged in building. He may have a colossal structure to compete with on one side, and the question is, How can a certain dignity be given to a building of inferior size? One of the principal difficulties is to adjust the horizontal lines, or the height of the stories. The cornice of a ground-floor story of the larger building probably breaks rather unpleasantly into the third or fourth story window of the small building. This ought to be avoided by arranging the lines of the small façade that they agree as far as possible in level with those adjoining. As the disparity of scale is so great, there is perhaps little to be done to remove the impression of insignificance or diminutiveness of the smaller work, except, perhaps, to avoid too much detail and elaboration as tending to increase that idea. Whether it is better to be plain in the parts or full of small detail, is a point that can only be decided by the circumstances. There is one principle to observe, nevertheless, which architects should be careful about if they wish to avoid as much as possible all comparison as to size, and that is that nothing in the larger building should be repeated in the smaller. For example, it would be exceedingly petty, almost amounting to a ludicrous comparison, if an order of pilasters rising two or three stories in the large structure should be repeated on a smaller scale, or if any attempt were made to copy or adopt the same divisions and features of the larger building in the smaller. How absurd it would be, for example, to erect a façade near the west front of St. Paul's of a similar design—superimposed orders, pediments, and towers. The small copy would at once appear ridiculous by virtue of the comparison of scale challenged. The likeness at once invites attention, and always to the disadvantage of the smaller edifice. The principle involved is that all similarity of feature should be avoided, and a varied and completely different elevation be designed. It is therefore that large edifices of a single order, like St. George's Hall, Liverpool, or the British Museum, by the scale of their parts become very trying to buildings of small dimensions erected in their immediate neighbourhood and of columnar design. There is one common standard by which scale is measurable—namely, the human figure, and it would be to the general advantage if the height of doorways and stories was made to bear some moderate ratio to this unit.

Great masses of building are rendered less ungainly by division of parts, breaks in the outline, and by varied skyline. Nothing can be more hideous than a colossal cube, instances of which are met in many of our great warehouses, blocks of flats, hotels, and railway stations. Much of the unsightliness of the huge edifice can be removed by a varied skyline, and we cannot illustrate this feature better than referring to the Victoria Embankment, where hugeness of structure has been in one case much alleviated by a pleasing skyline of pavilions and chimneys. We refer to the large block of residential chambers called Whitehall Court. The other blocks farther eastwards lack this quality, the upper flat lines of roof of the Savoy Hotel, and the Medical School present hard, level lines to the sky, which make their magnitude, in one respect, more painful, while it actually destroys to the eye their real extent. We might go on, and refer to the details of buildings as means of regulating scale. Even the setting out of rustications may be made instrumental in increasing or diminishing apparent size, on the principle that division into small parts has the effect of increasing the apparent dimension. Attention, at least, to the subject is more than ever demanded by the vicissitudes of modern

town buildings, which are often as colossal in their dimensions as they are ugly in outline and vulgar in detail.

PROFESSIONAL BODIES AND THE COMING SESSION.

VERY soon the architectural societies will be in active swing. Members will be recounting their vacation rambles and excursions, others reading papers on professional subjects and discussing modes of practice and grievances. We are not pessimists enough to think that all this labour and intercourse is thrown away—that the profession is neither better nor worse for discussing matters which concern only themselves, which the public neither care for nor trouble about. Of course there are those who believe that it is more politic and necessary to get a wider audience—to address public assemblies rather than small coteries of their own profession. They think it is better to appear in newspaper controversies than in the pages of a society's Transactions, and to become known as architects of millionaires' mansions or town-halls than as readers at learned societies of discourses which are seldom looked at beyond the confines of a lecture-room. We do not deny there is something in this argument—that to know one client or patron is worth a hundred professional papers; but the active and useful members of societies reap a harvest of more abundant satisfaction to themselves, and soon get heard and talked of beyond their own ranks. Few men were more active in promoting the *esprit de corps* of their own profession than the late Professor Cockerell, Sir William Tite, Sir Gilbert Scott, and Mr. Street, or filled more important positions in the art world and professional body to which they belonged, and none certainly had larger practices; and we may say the same of Mr. Alfred Waterhouse, and many more who have filled and are filling offices at the Institute and the Architectural Association.

At the same time, there is one danger to which all professional societies are exposed—that of becoming gossiping clubs, assemblies for talking and ventilating personal views of little practical interest. Discussions are often wearily prolonged by mere talkers, the gist of whose remarks may be summed up in a few words. To avoid this tendency it is necessary to give each meeting some practical subject to discuss, and to arrange, if possible, that each session should have a "backbone"—some matter of interest to maintain attention. Desultory discussion and talking are too often the results of a weak programme. Why, for instance, should not the Society of Architects begin another of those profitable questions in which short prefatory papers are read and discussed on materials and processes allied to architecture or decoration? Questions relating to flooring, plastering and modelling, hygienic and sanitary construction, and decorative applications are always of value and interest, and might at least be given alternately with subjects of more general architectural and archæological interest. Now that the student's education is to the front, it may be necessary, in country associations, to give a course of lectures on some one subject, and so make a provincial society as educational as possible.

The Architectural Association have entered upon a new career. Their new educational scheme will have one good result if it combines the classroom with the studio, as it proposes to do. The lecture is not enough, as it often presents to the student the subject, whatever it may be, from the lecturer's point of view, and does not take into account the real wants of the student. For example, a lecture on such a matter as the strength of girders or structures often presupposes a great deal more knowledge in the mind of the students than they possess, and an expert often assumes his auditors to know all the mechanical actions which take place in a beam and the nature of stresses. The expert lecturer sees his subject in quite another way from that which the student takes, and it is therefore impossible that the instruction can be either instructive or interesting. In this respect the old teaching and classes of the Association failed; but according to the new programme the pupil will be taught from the elements, and he is more likely to follow. The class-room is to supplement the lecture; each student will be examined and be allowed to put questions to his instructor, so that he will be better able to understand each step of the course. A practical example will be set before the student, and this will be followed up in the studio. The lecture, class-room, and studio practice will be concurrent, though, as we understand, a student may enter either course, the lectures or classes only, or the studio only, for a fee of five guineas for each course. The studio course will be that of main value to the articled pupil as to all students, as it will afford him the means of seeing the theory he has learned put into actual practice, as far, at least, as drawing and specification work can do it. In the studio the student will, or ought to be, instructed in making working drawings, details and specifications of real buildings of different kinds: the abstract will here be put into concrete and practical form. But the curriculum may fail from one or two courses. It may be too elaborate and collegiate to meet the requirements of those students who are in offices, and do not care to enter a long course of study; or, secondly, its studio course may not be of that practical character which is required. It does not follow that a good lecturer is a good class teacher or studio instructor, or that the subjects given are those most useful. We are of opinion that, as far as possible, the instructors should be selected from men who have been practical architects, who know what work actually is, and should not be the mere lecturer who has acquired his subject in a cursory, general way, partly by drawing, and partly by reading and study. And there are plenty of architects, young and old, who have had the opportunity of study and culture, who might be enlisted into the service of the Association—men who have had experience of one or more special departments of their profession. Now there are men to be found who have made construction and mathematical principles their study; others who have studied the artistic and decorative side of their profession; others who are experts as specialists. Each of these ought to be represented in the lecture room and studio. How far the studio course will afford the practical instruction required is a question of moment. Drawings and specifications are valuable means of practically testing acquirements, but they can be learned during the term of ordinary pupilage in the office. What the younger pupils require are workshop instruction and practical experience of actual building construction, both of which will necessarily be excluded from the course. The essentials of technical knowledge, the use of tools, and the details of the building trades should form part of the studio course, and it may be worth the attention of societies who are instituting courses of study to provide workshops and practical models, upon the lines of some of the Continental and American colleges. The lecturers also should be able to present their themes in a concrete form, down to the level of the students—a rather difficult thing for men who have been initiated only in the theory of their profession. Many technical schools have failed because the actual problems and examples given have been of a rather stereotyped form. The diagrams and models illustrating brickwork, carpentry and joinery, and masonry, for instance, seen in schools of science and workshops are copied, but make little impression on the pupil. He requires to know how to set out a staircase for a given space and height, and to show its construction; in dome or roof construction the same observation applies. The problem must be set for a given purpose, and the actual details explained as the work proceeds; therefore stock apparatus and models lose their value. A successful curriculum must not stop short at designing on paper, but show how each detail can be executed. There are difficulties in the way of combining the workshop with the studio; but the scheme before us certainly merits a trial as being the only attempt in this country to unite theoretical with practical knowledge.

PHOTOGRAPHS AT THE CAMERA CLUB.

ALTHOUGH no architectural subject grace the very beautiful collection of camera prints which Mr. Ralph W. Robinson displays in this gallery at Charing Cross road, he shows, in the nearly completed series of portraits of members of the Royal Academy to be seen there, some capital likenesses of our architect R.A.'s and A.R.A.'s missing out, we regret to say, Mr. G. F. Bodley, A.R.A., who seems to object to any personal appearance in public, inasmuch as he was the sole member of the Academy among the architects who did not take his place in our "Contemporary British Architects" series of portraits published in the Building News last year.

Mr. Alfred Waterhouse, R.A., is represented in a fine "half-length" seated at his table with a plan of a big church, not the most usual class of building in his practice perhaps, but possibly the nearest drawing to hand at the moment. Mr. Norman Shaw, R.A., sits in front of what might be his drawing-room fireplace, with its marble columns and big plain copper-domed fire-dogs, on a handsome upholstered old English chair of choice detailed carvings on both legs and back. Mr. J. L. Pearson, R.A., left mindful of special surroundings, is seen at his escritoir, midst a mass of correspondence passing on one side the sketch of a small building. Sir Arthur Blomfield, R.A., figures in his portrait with the tee-square, dividers, and all the rest, busy with the preparation of plans for, probably, one of his thousand-and-one varied undertakings. Prof. George Aitchison, A.R.A., in another "at home" representation, is standing at his book-case ready for a reference if not engaged upon "material" for his Academy lecture. Thus each is shown with the particular environments in which their daily work is done, and so we see Mr. Hamo Thornycroft, R.A., in his white blouse, sitting before the roughly-corbelled fireplace of his studio in Melbury-road, or Mr. G. F. Watts, R.A., his next-door neighbour, who is here depicted sculpturing the great equestrian group which he did for the Duke of Westminster at Eaton Hall. Mr. Frank Dicksee, R.A., seated in an old Spanish stamped-leather chair, with quaint antiquities and rare oddities on the walls, seems quite at home, and likewise equally so looks Mr. H. S. Marks, R.A., with his crockery and his birds. Sir Frederic Leighton, P.R.A., in his refined and elegant home, looks the picture of himself, seated in contemplation of "The Sluggard" statuette he so lately published. Few of the painters seem to affect architectural surroundings in their studio fitments, although we know that Mr. Marcus Stone and Mr. Luke Fildes have charming houses from the pencil of Mr. Norman Shaw, while Mr. Val Prinsep lives in the home designed for him by Mr. Philip Webb. Few of these portraits indicate any such harmonious settings in the studio as the outsides of their buildings indicate

Mr. J. E. Hodgson, R.A., stands, with his dog, in front of a wrought-timber screen or entry, which looks very well in the photograph, but it might be a "make up" arrangement. Mr. Alfred Gilbert has a characteristic portrait: he reflects his work, and also his letters, seated in a Morris's rush-seated armchair, with studio properties and unfinished works on every hand, and Mr. A. C. Gow is shown painting, with some old armour suits round about him, indicative of his love of historical subjects. These portraits make a great feature in this exhibition, but Mr. Ralph Robinson's strongest work is in his composition landscapes, with one or two figures to give scale, and perhaps a sense of humour. His prize medal print from the Pall Mall Exhibition of "A Primrose by the River's Brim" is one of these, and "Sweet Springtime" is another, with a lad and a lass love-making near an old windmill overlooking a valley, with all the beauty of a fine English landscape well indicated. There is, too, a beautiful half-length big picture of Sir Fredk. Leighton, P.R.A., printed in rich browns, and throughout the gallery are several nice studies of female beauty, some shown in effective rough wooden frames, bronzed and gilt in metals over the timber fibres and grain. These look very well, if not perhaps a trifle too clever, and they are inclined to detract from the delicate tones of the photographs which they inclose. The Exhibition opened last Tuesday.

NONCONFORMIST CHURCH BUILDING.*

By James Cubitt.

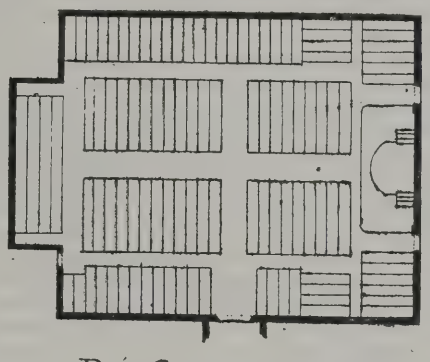
CHAPTER III. (*continued*).

2. FORM OF PLAN.

ARRANGEMENT OF SEATS.—This has, or should have, considerable influence in planning, and should be kept in view from the beginning. To settle the shape of the building first, and then to pack the seats to it afterwards, leads both to inconvenience and to waste of room; yet, judging from results, it is by no means a rare proceeding. A great point is to arrange the seats in suitable lengths. If they are too long, the church may be half-empty while, at the same time, there is not a single pew to spare for newcomers. And long pews, too, are objectionable on account of the difficulty which those who arrive last find in passing a number of persons already seated. The most useful sizes are those which contain four, five, six, or seven sittings. A few shorter, and a very few longer, seats may be needed here and there.

With regard to the direction of the seats, not much is gained, in comparatively narrow buildings, by putting them otherwise than at right angles to the longer axis of the plan. Just at the sides of the pulpit a few may be turned lengthwise. But in wide churches, and especially in those designed on "central area" plans, the case is different. Here it is often well to dispose the side seats diagonally. It is not necessary, however, that they should face the pulpit with absolute exactness, nor is there, in practice, any advantage worth the expense of bending them into circular sweeps; but they should be so disposed that everyone can easily look towards the pulpit, seeing that in most Nonconformist churches it is from that point that nearly everything in the service is read or spoken.

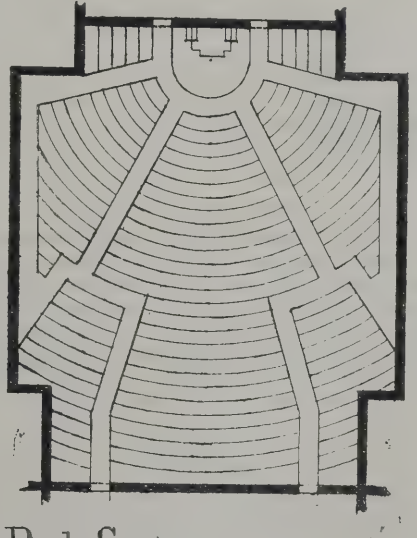
There should never be a middle alley (or so called "aisle")—at least within many parts of the pulpit—when the pulpit is in the middle. When the pulpit is on one side, a middle alley is unobjectionable. Every speaker likes to have an audience in front of him, and not an empty passage. If there is anything worse for the minister than to look straight down an alley, it is to have the main entrance into the building placed in the centre of one of its sides, with an alley leading from this to the other side. About half the congregation will then cross the building, backwards and forwards, at every service. A main thoroughfare, with numerous persons passing to and fro, is thus established right across the middle of the church, cutting the centre block of pews in two, and causing an intolerable distraction both to preacher and people. Both the middle alley and the cross thoroughfare are shown in the adjoining sketch of "Bad Seat Arrangements, No. 1."



Bad Seat-arrangements: N°1.

It is not a mere fancy sketch; but is taken, in its essential features, from a recent competition design for a large Nonconformist church, to which a "professional adjudicator" awarded the first premium!

If it is unpleasant for the minister to look directly down a passage, it is worse to have three or four such passages concentrated on him, so that he cannot even escape them on any side. Yet it is sometimes announced as a merit, in the description of a building, that "all the passages radiate from the pulpit."



Bad Seat-arrangements: N° 2.

The second sketch of "Bad Seat Arrangements" shows this objectionable system; and it also exhibits a second peculiarity, which happens, in a Nonconformist church actually built near London, to co-exist with the other. This is what may be termed a labyrinthine disposition of the alleys. The way out from each part of the building should always be obvious and direct; but in this case, as in some others, a sign-post is almost needed to inform strangers of the various turnings which they will have to take.

Width of Seats.—The width from back to back commonly varies from 2ft. 6in. up to 3ft. The first dimension is small, and the second, in most cases, rather needlessly large. 2ft. 9in. or 2ft. 10in. will usually be found wide enough, and if well managed will allow room for kneeling. 20in. on the seat is a common allowance for each person, though in some large places, such as the Metropolitan Tabernacle, only 18in. are provided.

The width of pews, and also the space allowed for each sitting, should be carefully inquired into in comparing one design with another. What looks at first like a large amount of accommodation at a cheap rate, may turn out to be a mere case of overcrowding. Thus, an area that will seat 500 persons in 2ft. 6in. pews with 18in. sittings, will only allow for 357 in 3ft. pews with sittings 21in. wide.

POSITION OF THE PULPIT OR PLATFORM.

When a committee have any strong feeling on this point, and a decided preference for a position either in the centre or on the side, it may be well to state the fact in their first "Instructions"; since these different positions require a different arrangement of pews. To some persons, a central platform suggests a lecture-hall rather than a place of worship. To other persons, a side pulpit suggests an altar and things pertaining to Catholicism. But, treating the matter simply as one of practical utility, two or three points are worth noting. Where there are side galleries, it is often difficult to arrange for a pulpit on one side of the central space; because, unless it is high above the floor, which is very undesirable, it will be hidden from the persons at the back of the gallery next to it. Where there are no side galleries, a side pulpit allows of more width between the columns in plans like B, C, D and E, already published. The reason for this is that there can then be a middle alley and *two* blocks of seats between column and column; whereas with a pulpit or platform in the centre there can be no middle alley, and consequently only one block of seats there. Where, also, as at E, there is a baptistery, a side pulpit helps to economise space, because if the pulpit were in the centre of the building, the baptistery, according to ordinary Nonconformist custom, would have to be in front of it, and not behind it, and several rows of seats would thus be lost from the centre block, just where space is most valuable. The back of the apse, or of the choir recess, is also a much more convenient place for such a baptistery than the front of the platform, and with a side pulpit it is equally in sight there.

Looking at the pulpit question as one of acoustics, there is somewhat less risk of echo in an ungalleried church when the pulpit is at the side, for then the speaker does not face a flat wall, but rather a corner of the church. In very large, galleried places, on the contrary, like K, a central position is probably better, as the people on one side of the minister would otherwise be too far away.

POSITION OF ORGAN AND CHOIR.

There are, of course, numbers of small Nonconformist churches, and some large ones, in which there are neither organ nor choir. In one of the first rank, built some years since, in which there are both, the following memorandum was issued to the architects who were invited to compete.

"Our worship is not *choral*, but *congregational*. No hymn, chant, or anthem is sung in which the congregation does not join. The idea, very largely realised with us is, that the whole congregation shall sing from music-books in four-part harmony.

"The choir, technically so-called, is therefore only part of the singing congregation; its function is simply to lead it. It should

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therefore be in it, and of it—under no circumstances separated from it. It should be felt in its lead and control of the congregational song, but not seen, or even heard, apart from it. Hence it should be so placed as to be part of the congregation. The great attainments of the present congregation in musical worship are to be chiefly attributed to this arrangement, and could not be realised with a separate choir in a choir-gallery; for which, consciously or unconsciously, the congregation listens. The choir must, of course, be contiguous to the organ, and in possible communication with the organist."

Such a complete merging of the choir in the congregation is not always attained, nor, perhaps, attainable. Ideals differ, and there are cases in which a separate choir is preferred. In any case it should be somewhat raised above the congregation, and should face rather to than from them. Its position will naturally have to be arranged along with that for the organ.

The tendency in some Nonconformist churches has been to make the organ painfully obtrusive in appearance; to set it up as the chief object in the interior. In others it is made, with better taste, a less overpowering feature; but then it is frequently put into too small and low a chamber.

A joint-committee of the College of Organists and the Institute of Architects has very recently issued a report on the best positions for organs and choirs. The report states that there is much misconception both with regard to their relation to each other and to the congregation. On musical grounds they consider the old-fashioned position for both organ and choir in an end gallery facing the pulpit to be a very good one. They strongly advocate a lofty space above the top of the organ pipes, "to allow the sound to develope itself and to pass into the church." They do not advise dividing an organ into two or more parts, as is sometimes done. They recommend that organs should not be placed in small or low chambers, but should have a sufficiency of open space round and above them, and a solid, unpierced wall behind them. They say that the organ should be at a short distance from the choir, and that the best distance is about 20ft. They further suggest that the choir may sometimes be put with advantage in side galleries, and should in any case be raised from the floor to an extent proportioned to the length of the building; and also that if it is located in a chancel, that part of the church should not be shut off from the rest by a low arch interfering with the sound.

These, to some extent, are "counsels of perfection," and can only be followed as far as circumstances will allow. It will prove, however, much easier to adopt them in Nonconformist than in Anglican churches, and it is worthy of note that, years before they were issued, some of the principal ones had already been acted on in the building mentioned in the first paragraph under the present head.

STAIRCASES, LOBBIES, AND EXITS.

Public buildings should always be so planned that different streams of people, as they go out, will not come into collision with each other. It is chiefly from a neglect of this rule that so many persons are yearly crushed to death in cases of panic. The ideal system would be for every alley and every staircase to have its own independent way out into the street, and its own separate doorway. Of course, the different lobbies and passages need internal means of communication between them; but there should be a separate and direct way out for each main stream of people to which it will naturally take in case of alarm, and in which it will not meet or impinge upon any other stream. All doors should open outwards, unless, in the case of very wide outer doors, they are made to slide apart, or to sink into the basement, &c. The point is, that they shall never be liable to be jammed by the pressure of a crowd.

The staircases should be of incombustible materials. The steps should be securely supported at each end, either by walls, wrought-iron joists, or otherwise. Where there are balusters and handrails, these should be very strongly fixed.

The steps are best in short straight flights, with frequent landings of sufficient size. Winding steps, wide at one end and very narrow at the other, should never be used in public staircases. It was the use of these which caused the terrible accident during a service at the former Surrey Music Hall, when a large number of persons were killed and injured.

The minimum sizes allowed in London for passages, &c., in buildings requiring a music license are the following. No staircases or passages open to the public may be less than 4ft. 6in. wide. If a staircase or passage is liable to be used by more than 400 persons, it must be 6in. wider for every additional 100 persons, over the first 400. If a staircase is more than 6ft. wide a dividing handrail must be put down the middle of it; and there must never be less than two staircases, however small is the accommodation above the ground floor. These rules do not at present apply to places of worship; but they may be useful as a general indication of what is necessary.

Lobbies should be so planned as to cut off draughts, without materially obstructing the outward passage of a crowd. The total door-space should be ample; but very wide and heavy single doors should be avoided. Of course, care must be taken to see that one door, when open, does not block or partially block another one, nor project across the stream of people. Where circumstances permit, it is well that lobby-doors should have no fastenings, and should simply close themselves by spring centres or spring hinges. These may now be obtained of forms which will shut firmly but slowly, and without clatter. It assists in keeping out draughts if lobby-doors open outwards only, and do not swing inwards also. Any wind from the outside then helps to shut, and not to open them. It is best when the doors into and out of a lobby do not face each other in a direct line, but, rather, are placed at right angles. The wind then cannot blow straight through, but has to turn a corner before reaching the interior of the building, and this destroys much of its force.

SUBSIDIARY BUILDINGS.

As the work carried on in connection with a church becomes more diversified, these tend more and more to increase. At the least a minister's vestry and a room for the church officers are needed. The former should be near the pulpit, and both rooms should be in easy communication with each other. Lavatories and latrines in suitable positions are, of course, necessary. A separate well-lighted and cheerful room is commonly found desirable for ladies' working meetings and similar purposes. This should be readily accessible from the church, so as to be available in cases of sudden illness, and should have a separate exit of its own. Rooms for adult Bible-classes are also very useful, and will be turned to account in connection with other kinds of study, as well as for debating societies, &c., and for the practice of music. A separate reception-room or "church parlour" for social meetings may be added, if means will allow, with a kitchen and serving-room as its appendages. If the kitchen happens to be on a different floor, a lift from it to the serving-room saves much labour.

Sunday-schools and other class-rooms will be treated of separately. A lecture-hall for week-night services and for secular meetings is very useful when it can be afforded; though, by particular arrangements, the Sunday-school, or some part of it, may often be conveniently and economically made to serve instead. Some churches, again, have a mission-hall adjoining them so fitted up and conducted as to attract the classes who seldom enter a place of worship. A reading room and library, too, are occasionally added, and as time goes on it is probable that the list of subsidiary buildings will become yet more varied and extensive. Caretakers' rooms, which are always useful, become almost a necessity when there is thus a group of subordinate buildings belonging to a church, some or other of which are in use almost every day of the week.

HOT-WATER ENGINEERING.—XVII.

Supply of Hot Water for Baths and Domestic Purposes.

PIPES, COCKS, AND APPLIANCES.

As mentioned in an earlier paper, the correct iron tube to use for these works is that known as "red steam," a pipe of stout quality distinguishable by its red colour, except when it is galvanised. In the latter case, the thickness of metal has to be observed, as the majority of galvanised tubes are for gas-works and of lighter quality. Gas tube is occasionally used for hot-water works, but only in speculative building property of a poor class; no one using this material who has any intention of guaranteeing their work.

In London, and the southern half of England generally, the plain red tube is used, as the hard water, by depositing carbonate of lime upon the inner surface, prevents rusting; but in those districts having soft water (and there are some other waters) a tube which will not readily rust has perforce to be used. The rusting process, of course, weakens and ultimately destroys the pipe if of plain iron, and this action is very rapid in some districts. In those places where the water has such a very vigorous action upon iron, the galvanised variety is of little use, as any imperfections, and those parts that may have been cut and the surface injured, will also be attacked seriously. It is chiefly in the North of England that these waters exist; the soft waters that are met with here and there in the South have not the destructive qualities so pronounced. In the Yorkshire district recourse has to be had to lead pipes, and with this metal there are several pecularities to be mentioned.

In the first place, lead pipe is more expensive than iron; but this difference in cost would be balanced by the lessened time in running it, over that in using lead pipe for this purpose an exceedingly strong quality must (or should) be used. Many good firms who have to erect hot-water apparatus never use pipe for the circulation having a less substance than $\frac{1}{16}$in. or $\frac{1}{8}$in.—that is, a pipe of 1in. internal diameter would measure $1\frac{1}{8}$in. externally. Those pipes in which the water does not circulate need not be quite so heavy, as it is the heat that brings about all the effect in the following way.

To lead is attributed the peculiar action of expanding when heated, like practically all other substances, but does not contract to its normal size as it cools. Usually it is said that no contraction whatever takes place as the metal loses heat; but in any case it certainly suffers in time by the heating and cooling process. From this account the stout quality of pipe is used, for its strength by itself helps materially to deal the ill-effects explained. Tin-lined pipe, on account of its greater rigidity, is a good material, although to the best of the writer's belief the internal lining of tin has been introduced to obviate lead-poisoning (plumbism), that may be feared from the action of certain waters upon lead pipes.

The sizes of pipe used are the same with as with iron, as may be understood; but a deal of care must be used in running the pipe to supporting it, as its own weight, and the other strains which it is not so well able to bear, tend to stretch and distort it. With iron pipe a hook here and there is generally found sufficient to support it, on account of its own rigidity. With lead pipe this rigidity, even with the most strong qualities, is almost totally absent. The best way to support horizontal lead pipes is to place strips of wood beneath them. That which is used as tile batting, and is about 1in. square

swers well, and can, of course, be readily tained. For conspicuous work, however, this ood will require to be planed. Sometimes a ter relies upon a more than usual number of oks to keep his lead pipe from "sagging" wn, as it is commonly called, and this is suffi-nt if the pipe be strong, but it is not nearly sightly as using wood fillets.

Lead pipe that is carried vertically requires ll securing, and fillets are of no use in this se. A vertical pipe does not "sag" nor get t of the straight; but with 40ft. or 50ft. ngth the weight of the pipe itself is amply fficient to stretch it, without the weight or essure of water within it. In one instance nich the writer has in mind, the pipe was not fficiently secured, and this caused a result like

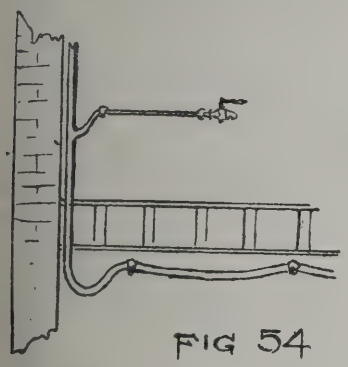


FIG 54

g. 54. When lead pipes are used the boiler is nerally of copper, and the connection between e two is effected with brass unions. It is a od plan, however, to have the pipes which are nnected to the boiler for, say 6ft., in copper iron, well galvanised), as instances have been own in which lead pipe, situated in very hot ickwork, has melted, when the apparatus has en emptied the instant the fire has been awn. It is a common practice for workmen, nen they attend to clean a boiler, to withdraw e water, immediately the fire is extinguished ere is no objection to this, if the pipes be iron copper, but with lead pipes trouble may ssibly ensue, as the brickwork behind the nge does not cool very rapidly. If lead pipes e used in hard-water districts, a coating of fur ide them will permit of the heat outside ving a destructive effect.

TAPS.

Cocks are practically limited to two varieties, e plug, and the screw-down. There are some f-closing cocks that act a little differently to se, but are not in sufficient demand to require cial notice.

For hot-water works, carried out with iron e, the plug cock has most general favour, the w of water is most rapid from it, and it is tantly opened and closed. A screw-down k of the ordinary kind has an enemy in nearly ry servant that uses it, on account of the ewing and unscrewing process. The ordinary g-cock with a nut at bottom is not so gener-y liked as the gland-cock, for although it is a le cheaper in first cost, it is more liable to kage. The gland-cocks have the plugs secured a stuffing-box at the top, and no leakage can ur at the bottom of the plug, where it is usual it to first show itself. The plug itself is as ble to wear as the other variety.

There are two ordinary patterns of gland-ks, the stuffing-box in one case being a cap, d in the other two plates of a suitable shape ured together with bolts. Figs. 55 and 56 w the two patterns. These should be of good lity; it is never an economy under any cir-nstances, and it certainly never proves a commendation, to use cheap taps.

The only objection ever raised to plug-cocks is violence with which the water issues from m if a pressure exists, and this violence is re trying and likely to cause trouble when the ter is very hot. In high buildings, with the tern situated at the top, the rush of water from in. tap situated at the base of the building to be seen to be understood; but, fortunately, re is a simple and inexpensive remedy for s.

In speaking of stop-cocks it was particularly ommended that the way or passage through m be as full as possible, so as to allow of the freest possible passage of water. Now this suggestion would give very ill results with draw-off taps (excepting the bath, perhaps), on account of the violence with which the water would issue. An ordinary vessel could not be filled

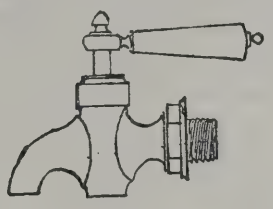


FIG.55.

from a full way bib (draw-off) cock, if a fair pressure existed and the tap was turned full on. The issuing water would enter the vessel, but by its force fly out again. The writer has just tested a $\frac{5}{8}$in. tap which has only 16ft. pressure upon it, and the tap is of the ordinary character (a plug-cock), yet to hold a hand-bowl under it, when turned full on, means simply distributing the water over one's clothes and the surroundings; very little remains in the bowl. This is with cold water; with hot water the results would be a little worse—with very disagreeable results, to say the least.

The remedy for this is to check the tail of the cock, the tail being that part which has a thread upon it, and is screwed into the pipe.

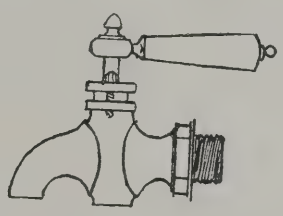


FIG.56.

This part of the passage through the tap is checked by reducing it in size as Fig. 57. Most makers supply these ready for use if so ordered, but if a workman has an ordinary tap to be reduced, he must cut a disc of thin brass or some other metal, and after making a hole in it of suitable size, solder it on to the end of the tail. Let it be very clearly understood that checking the passage the other end of the tap, the nose portion, where the water issues will be next to useless.

The size of the hole in the tail of the tap can be as small as $\frac{3}{16}$in. where the pressure is great, $\frac{1}{4}$in. where moderate; but it is really only taps that are used for filling small vessels that want checking in particular. As mentioned, a bath tap does not want checking, a rapid issue of water being required, and no risk of water flying over the sides; a lavatory basin tap need not be checked either, unless they be large—they are

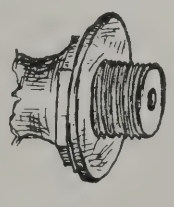


FIG.57

generally too small. It hardly needs mentioning that it is the taps at the bottom of the house that have the greatest pressure upon them, and the most violent issue of water, and it is at these taps as a rule, that the feature in question is most objectionable. Were the kitchen taps upstairs and the bath below, things would equalise themselves somewhat.

Screw-down taps are commonly recommended to obviate the objection there is in the violent outrush of water, as, being slow-opening cocks, the opening (unscrewing) process can be stopped at any moment; in fact, it is doubtful whether a servant ever opens a screw-down tap to the full when she fills her cooking vessels, supposing that there is a good pressure of water. A plug-cock would, of course, just as easily check the outflow of water if it was only partly opened; but it is better to check it in the way explained, and then the servants can use the tap how they like. Screw-down taps will, as mentioned, obviate the trouble under discussion, and do it well; but the majority of servants are opposed to them. Their action is certainly much too slow for a busy kitchen, and on this account a quicker action screw-down cock has been introduced that can be opened or closed with one, half or quarter turn of the handle, the latter being as quick as a plug-cock.

Quick-shutting screw-down taps are gaining favour and being used rather largely in lavatory fittings. It has been contended (by the writer, as well as others), that as the quick action is due to the thread (of the screw-down arrangement)



FIG.58

being of an abrupt pitch, like Fig. 58, this, when worn a little, would become too loose to hold tight, if there was a heavy pressure lifting the seat. In this case, if the seating could be lifted ever so little, a leakage must result, and as the screw-down portion of a tap, when worn, is practically beyond repair, the tap would have to be replaced with a new one. This argument sounds well in theory, but is not correct in practice. The writer has used many such taps, which are all doing well, but a better test has been with two which have been used daily for the last four years by some seven or eight employés. Both hot and cold taps are quite sound: the former one has had a new rubber seating once, the latter has not been repaired at all. This is really good service.

There is one particular advantage with screw-down cocks, which is their non-concussive closing. Everyone has noticed that plug-cocks if closed sharply make a concussive noise—a kind of report—in the pipe near behind the tap. This is really a blow upon the interior of the pipe, caused by the sudden stopping of the water passing through it. We are very apt to consider water a substance like air, that can be compressed or driven in any direction without its exerting any noticeable strain; but as water is (except under enormous pressure) incompressible, the sudden stopping of its passage through a pipe, especially where a pressure exists, might be reasonably compared to the sudden stopping of a solid substance, only in this case the instant the stoppage occurs the strain is not wholly directed against the tap, but presses instantly in all directions. It is this action that makes plug-cocks unsuited for lead-pipe work (if a pressure exists), as the strain referred to will cause the soft material of the pipe to stretch and bulge, and sometimes light pipe has been split in this way. Screw-down taps are almost invariably used with leadwork.

NEW DEPARTURES IN ARCHITECTURE.

THIS formed the subject of Professor T. Roger Smith's opening lecture to the students in the Classes of Architecture and Construction at University College, London, delivered on Monday evening last. Mr. Roger Smith said he proposed to glance at that part of the history of architecture in Europe which was best known to us, simply with the object of noting how, from time to time, a new departure had been taken, and of seeing what an impulse had thereby been given to activity. The periods of activity in European architecture had ever been the periods of change. Starting from the fully-matured Greek architecture of the time of Pericles, the professor showed that Classic archi-

tecture, which had become more feeble and comparatively decadent during the decline of the Greek Republics, received a fresh impetus on the establishment of Imperial Rome, and the raising of vast structures throughout the Roman Empire, when many novelties in construction, as well as in design, were introduced. These changes in treatment illustrated the truth that novelty, though always associated with activity, was not necessarily a guide to excellence. With the Romans of the Empire boundless resources were utilised in architecture for the purposes of lavish and ostentatious display. Two methods of building but little employed hitherto were pressed into the service of the Roman architect—the use of the arch and the use of concrete. The possession of those means of rapid and ambitious construction enabled the Roman architect to perform surprising feats. This new departure started from the arch and concrete, and was favoured by the command of material resources and wealth—of stone, of labour, of marbles, metals, painting, sculpture, in unlimited profusion—in short, of the spoils of the whole civilised world, and was stimulated by the energy of the most vigorous race known to history. He would next inquire how this new departure operated, and what there was about such simple, and to us familiar, things as concrete and arches which contributed to so grandiose a result as was actually obtained. First, he would consider the change involved in the general adoption of the arch. With the lintel treatment, previously general, the scale of every part was necessarily restricted, for no openings could be wider and no columns further apart than the length of such stone lintel as could be trusted. With the arch the size of openings was almost unrestricted; the distances apart of supports could be enormously increased. But this was not all. The arch led to the vault, and this gave the means of covering large sections with a permanent roof, while a further development was to span a circular base with a dome. Further, the architect's command of the arch enabled him to support his vault on a few massive pillars, and thus grew up a series of grandiose structures, which were ornamented with lavish decorations. The use of concrete—i.e., of masonry made of small material, a little coarser than our concrete—enabled the Roman to construct both the vaults and the vast piers which supported them rapidly and comparatively cheaply, while it led him to substitute a superadded surface of marble, stone, or even plaster for the solid masonry of the finest Greek buildings. These modes of building constituted a new departure, and though they led up to results to which we cannot give unreserved admiration, they undoubtedly were associated with a stupendous display of energy. It was not, however, in structure only that the Romans introduced change. His method of decorative treatment, and in some cases his methods of dispensing with almost all that was decorative, relying upon the outlines and the mass of his structure, and the disposition of the openings in walls for architectural effect, were new. He made the Greek orders coarser and less elegant, and often reduced them to the position of subordinate ornament; but he used these with a lavishness, and connected arches to them with a boldness, that were astonishing, and opened a new chapter in the history of architectural design. When the force of the Roman departure had partly spent itself, a fresh force arose and led to a notable new departure, generally known as the Romanesque and Byzantine styles. Both grew out of Roman art, but each was widely divergent from the stem out of which it sprang. At Byzantium many of the conditions of a new departure on a great scale were combined, for, in addition to a new religion, there were a new seat of empire and a new mixture of races. In a surprisingly short time a building of great constructive and artistic merit, and original in almost every respect, was reached. In the edifice Sta. Sophia the methods of the Roman architect were all known and followed, but not exactly followed. The new style displayed an almost exclusive employment of the flat dome, usually lighted at the top, and carried on the domical corbels known as pendentives. The square plan and the quality of the carving, mosaics, and other enrichments were distinctive. It was easy to recognise the Roman architecture as the starting point; but an entirely new character was given to the buildings, and an original and most admirable style had sprung up. Byzantine architecture had continued, without much modification or development, to prevail in Eastern Christendom; but in the West it had not been so. The Romanesque division of Early Christian art was not so strikingly original as the Eastern, and its development was long hindered by invasions of Northern hordes. Later on, after it had been the universal style of Western Europe, it met with influences which varied it, and in Germany was carried to a high pitch of perfection. The next prominent new departure in this art was one of extraordinary interest and splendour, which lay under familiar observation: this was the invention of the pointed arch by the Mohammedans. Some of the peculiar features of the buildings of the followers of the Prophet seemed due to an innate faculty for designing and executing decoration. This was stimulated and drawn out by the impulse given by Moslem conquests to the nations when mosques first began to be built. A more thorough recasting of known features into new forms, and more remarkable creation of new ornaments and original decorations, had never been seen. The dome, the pendentive, the arch, the column, the rough construction encased in plaster, were all derived from Roman methods, but in no case did they look the same as in Roman buildings, while the surface decorations, the pierced stone and metal panels, the wooden grilles, the tiles, the inlays, the mosaics, the coloured and gilded plaster stalactite work, the noble shafts and their capitals, were all new and charming creations, as original as beautiful. The next new departure affecting Western architecture received its chief impulse from the Crusaders, and the recasting of religious establishments. We had in England opportunities of observing the whole development of Gothic architecture, and nothing was more surprising than to note by comparison of buildings of one part of this period with others a little earlier or a little later how continually the architects were taking a new departure, and what scant care they had for the work that lay behind them, so long as they could do something different in what was at hand at the moment. The professor proceeded to describe and illustrate the successive phases through which English art passed during this time. The British and Saxon buildings, generally small and often but temporary, were superseded by the castles and churches of the Norman conquerors, whose power and activity were displayed in an architectural development of great energy, if of varied excellence. The earliest buildings resembled those in Normandy; but very soon indeed peculiarities developed themselves, and Anglo-Norman became a distinct and well-marked architectural style, with an extremely pronounced character and beauties all its own. At the end of the 12th century the churches that were built were large in plan, and when circumstances allowed they were grandiose. The religious establishments were planned with great completeness, and often were of great extent. The castles, on the other hand, were isolated towers, strong, but without outbuildings. From the time when the pointed arch came in, architectural history gave a series of new departures of the most interesting and pleasing kind. What we were accustomed to call Early English, Decorated, and Perpendicular were phases through which Mediæval architecture passed under a stimulus which lasted for more than three centuries after the introduction of the pointed arch. This great building zeal was not sufficient to account for the eagerness and skill with which new forms, new mouldings, new enrichments, and new vaults were elaborated, each one rising out of the one immediately preceding it and taking its place. The pursuit of change did not always mean the attainment of growth. Early English was, on the whole, a finer style than either of those which followed it, and Decorated was finer than Perpendicular. What was secured was vitality and change, not necessarily advance. He came next to the remarkable influence out of which had grown the modern world—the Renaissance. Here we had a new departure, widespreading, far-reaching, full of energy, affecting not only the arts, but literature, science, religion, and politics. It was difficult to say why, but the fact remained that in architecture from the 16th to the 19th centuries we had done nothing but revive past styles, although from time to time brilliant results had been attained by a mixture of styles. Occasionally such a "blend" had not only produced good buildings, but appeared likely to originate a style of modern architecture; but it did not take hold, Europe had gone on erecting buildings for sorts of purposes, all clothed in the dress of s bygone style. In our own country we recently had a "Queen Anne" revival, rather, a revival of Dutch architecture of period of William of Orange, and prior to t a Gothic revival, beginning with Tudor working steadily back, and earlier still, Italian, Greek, and Palladian revivals. Yet ste telegraphy, and other new factors had create rapid accumulation of wealth, and occasio numberless fresh needs, which had stimula building to a remarkable extent, but had slightly affected architecture. He thou however, there were indications that someth like a new departure in architecture was possi and that a 20th century architecture m yet exist. In America we saw buildi largely bearing the impress of one man's gen but which were original as well as excell which all hung together by a certain semblance to a type, and yet possessed dividuality, character, and "cachet." modern style were to arise at all, America w country which seemed to offer a very likely for it to grow in, and from the United State both hoped for and expected great things. second example of something like a new s had lately been seen by many in Paris, w new materials had been employed under conditions, and with very striking results, in Exhibition buildings. The architect of 1890 Exposition buildings in Paris still stand made the utmost use of the structural perties of iron, and of the decorative qualiti ceramic slabs and tiles and metals, w were unquestionably novel, and partook the dignity, solidity, and stability which looked for in architectural works. A par to these buildings, though not so ostentatiou colossal, was to be found in England. concrete, terracotta, faïence, encaustic tile we knew them at the present day, practically new materials, and some of th like iron and concrete, were equal to two diffe materials, each, or even more than two, accor as they were manufactured. In the employ of appliances which science had put within reach of our constructors for such mo purposes as suggested, nay demanded, art treatment, we had the nearest approach to a departure which had yet shown itself, and if anywhere, we had a prospect that 20th century might, perhaps, attain a de English style of its own. The most succe architect of the period now drawing to a had been unquestionably the foremost to em new inventions, or, at least, to give the chance, and to him we owed it that the En people had an opportunity of seeing, on a scale, at the Natural History Museum, wide architectural possibilities the employ of terracotta could introduce. Certainly, most original buildings of the present and the most original designs for buildings about to be erected, seemed t based, so far as their structural peculia went, on the use of iron, and in respect of artistic qualities on the free employment of t cotta. He urged on all students before him if a new departure came in their time they w be safer in going along with it than in stan aloof, as it would probably offer the best cha of doing good and original artistic work. then, Mr. Roger Smith continued, you or so you are to work out the evolution of a new En architecture, original and good, and having its starting point the new and improved met of construction and the new and improved m rials in use, or likely to come into use, it is al self-evident that you must master the scien construction and the art of architecture, or will not be prepared for the task, and here in the claims of improved education. Refer to the recent carpenters' strike in London, Professor remarked that, in his opinion, would have to be substituted for carpenteri roofs, and only those who had studied the bilities of that material would be able short notice, to deal with the structural diffic and to design an appropriate and architec iron framework for the roofing, which w have been in timber. It was evidently more ever necessary that architectural training sh be thorough. In referring to the Inst examinations, the Professor expressed the that students would be even more desirou fitting themselves for the practice of the

ssion than of passing such tests, for, as he minded them, the two were not quite the same ing. In that college (University) facilities for eparations for after-life were now afforded which re not previously available. By the liberality the Carpenters' Company a class of architec- ral drawing had been organised, which had met two afternoons in the week, under Mr. irling's direction. The Carpenters' Company d also enabled them to establish a night-class building construction, to be taught by lectures d drawing, while the existing classes of archi- ture and construction would be continued as fore. These steps were not taken with a view to pose the scheme of the Architectural Associa- n, to which the lecturer wished all success; t they directed themselves to a different ss of students, and in London there was tainly room for many organisations to work moniously.

NOTES ON TERRACOTTA.—I.

TERRACOTTA has been very appropriately designated a higher development of brick- rk, and we are told by John Ruskin and wis Grüner that most of the architectural racotta of Northern Italy, dating back to the h and the 7th centuries, is designed in brick s. As a building material it is yet com- atively in its infancy, for we find it super- ing not only the softer kinds of stone for erior work, but in some instances iron and rble, in its being manufactured into grave- nes and milestones. The famous tub of genes is said to have been of this material. the revival of architectural terracotta we are ebted to no one more than the late Mr. shfield, especially for his experiments in ng or baking, as most of his work consisted the reproduction of the forms of ancient tery; but it has been reserved for Mr. terhouse, Mr. Collcutt, Colonel Edis, and a other architects of the day to benefit by his our, and as an indirect result of such, we have, ably in London, several very fine examples of ldings faced with terracotta—viz., the Natural tory Museum and the City Guilds Institute South Kensington; the Prudential Assurance ces at Holborn Bars; St. Paul's Schools at st Kensington; the Constitutional Club at thumberland-avenue; and latterly, the val English Opera, Shaftesbury-avenue; le one of the most successful treat- nts in this material is that of the façade he Café Monico adjoining. It can, there- , no longer be said that terracotta is a n, and, like cement or stucco, forming only neering of the structure in connection with ch it is used. In some past instances in ch façades were faced with slab-like pieces, ring in thickness from 1½in. and upwards, and together with lip-joints, the word sham was ly applied; but in the buildings above named material is bonded into the work, forming a orate part of the structure.

hough stone will always recommend itself for truthfulness with which it may be worked, considering its rapid decay in the acid-laden spheres of our large cities and towns, one not but be surprised at the slowness with ch the use of terracotta asserts itself. There stronger negative evidence in favour of its than the exterior of the Houses of Parlia- t, in connection with which every precaution taken that was thought necessary to insure election and use of a stone capable of with- ding the acids of our London atmosphere. failure is evidenced by Ransome's patent ate solution, invented expressly to preserve stonework of Houses of Parliament.

CLAY.

he importance of the choice of clay cannot be estimated. No matter how much skill and be expended in the various stages of pro- ion, if the clay be wanting in the essential erties which, by the process of desiccation baking, offer an effectual and enduring tance to the agents of disintegration—or, in words, unless the clay under the action of se heat be capable of producing incipient ication throughout the entire mass—ultimate re will ensue. Clay is defined by the chemist luminium silicate, and is the result of the nposition of felspar, one of the constituents e primary rocks. All soils are originally ed from the granitic rocks. "Silicates of ina," we are told, "enter into the composi- tion of a number of crystallised minerals, among which felspar occupies, by reason of its abundant occurrence, a prominent place. Granite, por- phyry, trachyte, and other ancient interstratified rocks consist in great part of this mineral, which under peculiar circumstances, by no means well understood, suffers complete decomposition, being converted into a soft, friable mass of earthy matter or clay." The Italian clays have long been reputed very superior on account of their natural plasticity, requiring no "grogg" (i.e., broken pottery ground to a very fine powder, and mixed with the tempered clay) to reduce the shrinkage. Taking into account the presence of the Apennines, "those everlasting quarries of granite," as Mr. Ruskin is pleased to call them, in conjunction with the fact that the finest clay is derived from the decomposition of granite or felspathic rocks, Italy might well abound with the marls suitable for pottery and terracotta. Sir Charles Lyell says: "The purest clay found in nature results from the decomposition of a rock composed of felspar and quartz, and it is almost always mixed with quartz."

Subjoined are analyses of some of the extensively worked terracotta clays:—

RUABON RED.

Moisture	1·54
Combined water	3·54
Silica	63·00
Alumina	20·10
Sesquioxide of iron	4·84
Protoxide	1·51
Potash	2·37
Soda	3·10
	100·00

WREXHAM.	RED.	BLUE.
Hygroscopic moisture	3·01	2·85
Combined water and organic matter	2·90	4·36
Silica	62·80	55·67
Alumina	16·94	20·53
Protoxide of iron	1·27	2·12
Peroxide of iron	6·50	6·17
Lime	0·98	1·74
Magnesia	1·15	2·01
Potash	1·75	2·40
Soda	2·16	0·26
	99·46	98·11

NORTH DEVON.

Alumina	29·38
Silica	52·06
Lime	0·43
Magnesia	0·02
Iron oxide	2·37
Potash	2·29
Soda	2·56
Water combined	10·27
	99·38

DORSETSHIRE.

Alumina	32·11
Silica	48·99
Lime	0·43
Magnesia	0·22
Iron oxide	2·34
Potash	2·31
Soda	2·33
Water combined	9·63
	98·36

Terracotta of the colour known as pinky-buff is obtained by the admixture in proper proportions of red and buff-colour producing clays. The Hotel Albemarle, Piccadilly, is of this colour. London manufacturers get their supplies of clay chiefly from Poole in Dorsetshire, remarkable for its buff-producing clay; and from Dartmoor in Devonshire; also from Lichfield, and other places. The best clays are those which require no "grogg" to regulate their shrinkage, nor foreign matter to produce the required tone of colour. The natural colour of the clay is very much deteriorated by the use of "grogg," which, being so much inert matter, is incapable of undergoing any chemical change in the process of firing. Where "grogg" is used, recourse is often had to a practice known in the trade as "dipping"—i.e., washing over the surface with a thin liquid clay, or submerging the block in a thin solution of pure clay just prior to placing it in the kiln. In this way a uniform tone of colour and the appearance of a close surface are obtained. The colour is a mere veneering, and often after a few years' exposure may be seen peeling or shelling off, exposing the true character of the coarse and mottled clay beneath. A good clay is that which will, without any admixture, stand the maximum amount of firing required, and come out of kiln a good colour, true in lines, giving out a clear metallic ring when struck with a small hammer or chisel.

It is now agreed on all sides that the fine clays of the coal-measures, a term used to distinguish them from the strong, refractory clays of the tertiary strata, underlying recent superficial accumulations, are the most suitable for the manufacture of terracotta. That found at Ruabon, Wrexham, and Pen-y-bont, possesses the characteristics that so highly recommended the Italian clays, viz., plasticity in a very high degree, and, like them, requiring neither "grogg" nor sand, having at the same time a very large proportion of silica and iron in its composition, which add so greatly to its durability; the latter constituent producing that beautifully rich deep tone of colour familiarly known as the Ruabon red. This marl produces both red and blue wares, irrespective of the use of artificial colouring. The clay itself forms part of the deep red-coloured marls of the Permian group, and, in its natural, unworked state, is distinguished by a deep purple tint, imparted to it by the abundant presence of oxide of iron—a very little being sufficient to colour a large tract of clay. The marl of which the blue wares are made is of a greyish purple, in some veins approximating to a decidedly bluish tint. The red clay, if very highly or too much burnt, also produces blue wares.

The blue clay proper contains a larger proportion of iron than the red, and is more highly impregnated with lime, which, acting as a flux in the burning, produces that metallic glaze so objectionable to architectural effect. Firebrick clay, owing to its harsh, coarse nature (potash, soda, lime, and magnesia being absent), is hardly suitable for terracotta. But little practice is required to at once distinguish between the smooth, well-finished wares from the highly plastic and richly-coloured marls, and those from the refractory or strong clays. The former are found in great abundance overlying the coal-workings, the seams or strata in some instances cropping out of the ground upon the removal of the surface mould, and descending to considerable depths, following the dip of the underlying strata. In the inferior clays the desired colour is often obtained by the use of mineral and metallic oxides and of pigments, and sometimes by a surface washing of pure clay already described. The latter can be readily detected by the removal with a sharp chisel of a small portion of the burnt surface.

The choice of the firm from which terracotta shall be supplied should not be determined alone by the analysis of this or that firm's clay; in all cases it will be best to see samples—not stereotyped samples, kept specially for exhibition; but samples of the work incorporated in buildings, by which means alone a true estimate may be formed of the character and quality of the material, especially as to finish. The Tamworth clay is well represented by the Natural History Museum; the Ruabon by the Constitutional Club. Neither of these clays will vegetate if properly burnt, and they are said to make harder wares than any other clays known. The wares have remarkably smooth surfaces and a close texture, giving out a clear metallic ring. All clays should be weathered or exposed for some time before use, for it is generally found when working a new bed of marl that the shrinkage is great and uncertain. Nevertheless, a vast amount of good work has been turned out from clay that has not been weathered; but it is only with the very superior clays that this can be attempted with impunity. The term *marl* is used so vaguely as often to make its meaning very ambiguous. In the brick-making districts of the southern and eastern counties, all clays containing much calcareous matter, whether naturally or artificially, are called marls (malms). All such are excluded from the marls proper for the manufacture of terracotta.

NEW STREETS AND ROADS.

IT is surprising to find the number of new streets that are yearly formed in the Metropolis. The London County Council receive very many applications for approval. Last year there were no less than 109 applications received for the formation of new streets, of which number 43 were granted. The development of suburbs, which is constant, necessarily implies an increase

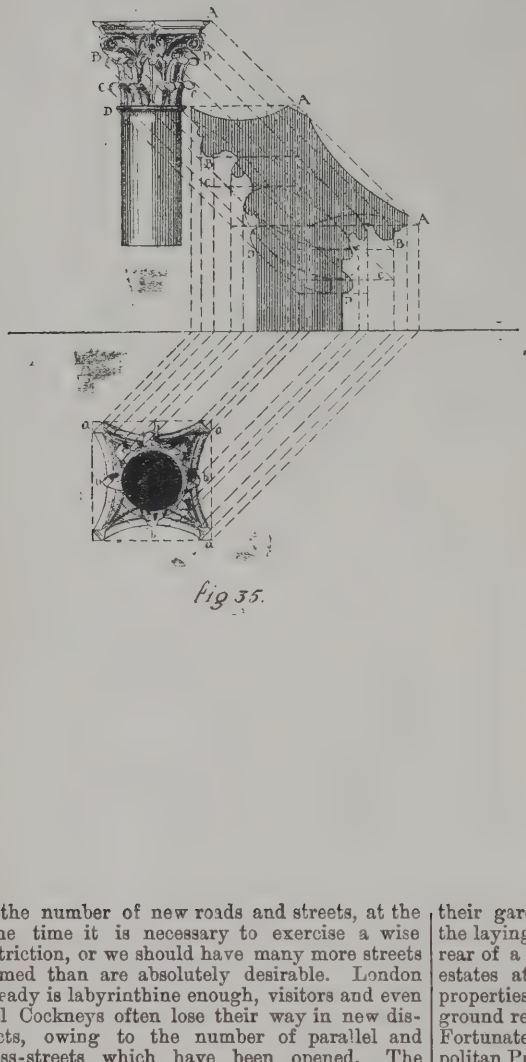


Fig 35.

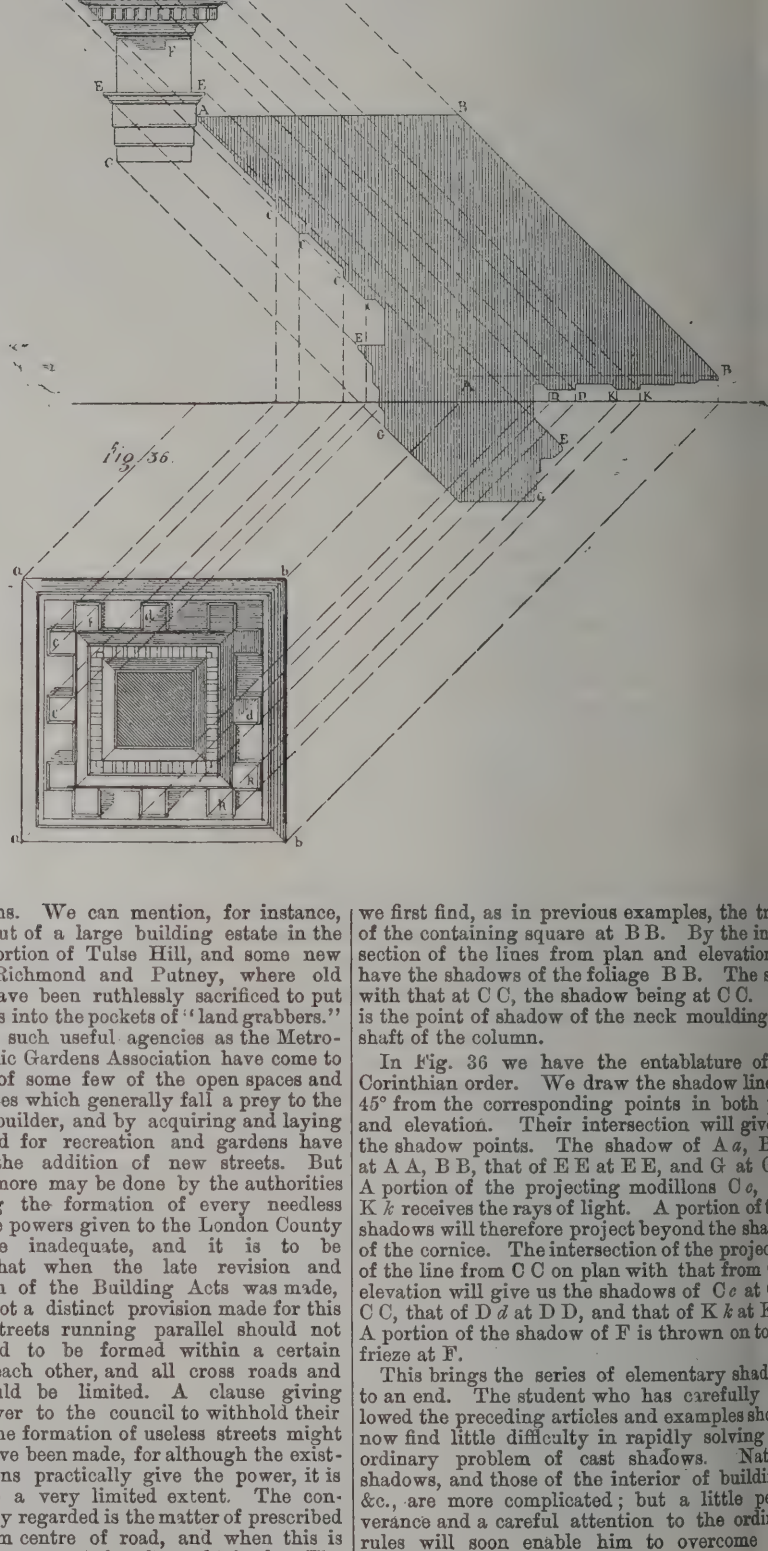


Fig 36.

of the number of new roads and streets, at the same time it is necessary to exercise a wise restriction, or we should have many more streets formed than are absolutely desirable. London already is labyrinthine enough, visitors and even real Cockneys often lose their way in new districts, owing to the number of parallel and cross-streets which have been opened. The provisions of the Metropolis Management Amendment Act 1862 gives the County Council power to receive and consider plans for new streets. Section 98 provides that no road, passage, or way, being of a less width than 40ft., shall be laid out for building as a street unless it be of the full width of 40ft. This salutary rule has been generally followed, and has resulted in the abolition of those *culs de sac*, which once were so common in old towns, for it is also provided that such new streets shall be open at both ends. But, even with these restrictions as to width and communication, a much larger accession of new streets is the result than are convenient or desirable, for the obvious reason that in laying out new estates the ground landlord or his advisers desire to obtain the utmost length of frontage possible in the given area, so as to multiply the plots for building. Now, this inducement to form new streets is getting really a nuisance, except for a few occupants of any particular road or street who desire a near cut to a main road or railway-station. The disadvantages considerably overweigh the conveniences. First as to cost. More streets than are absolutely required have to be maintained at the cost of the ratepayers; second, traffic is diverted from the main thoroughfares—the trade thereby suffers; third, the locality is so intersected by small streets, that property falls in value; fourth, small houses and gardens are the result, and the whole character of the locality is lowered in consequence. Many other drawbacks may be mentioned, such as the great public inconvenience of finding out a certain street and house, the confusion of postmen and tradesmen in deliveries of letters and goods; but those we have named are sufficient to show the perniciousness of the needless formation of new streets, and the consequent deterioration of the value of house-property. All parts of London are subject to the grievance, and even old and valuable properties are being ruined by the making of a new road or roads in the rear of their gardens. We can mention, for instance, the laying out of a large building estate in the rear of a portion of Tulse Hill, and some new estates at Richmond and Putney, where old properties have been ruthlessly sacrificed to put ground rents into the pockets of "land grabbers." Fortunately such useful agencies as the Metropolitan Public Gardens Association have come to the rescue of some few of the open spaces and private estates which generally fall a prey to the speculative builder, and by acquiring and laying out the land for recreation and gardens have prevented the addition of new streets. But something more may be done by the authorities in opposing the formation of every needless street. The powers given to the London County Council are inadequate, and it is to be regretted that when the late revision and consolidation of the Building Acts was made, there was not a distinct provision made for this purpose. Streets running parallel should not be permitted to be formed within a certain distance of each other, and all cross roads and streets should be limited. A clause giving optional power to the council to withhold their consent in the formation of useless streets might certainly have been made, for although the existing provisions practically give the power, it is exercised to a very limited extent. The condition mainly regarded is the matter of prescribed distance from centre of road, and when this is observed the consent is often obtained. The rapid growth of the Metropolis renders it absolutely necessary to check the useless formation of new roads and streets, thereby adding to the complexity of the map of London, and the consequent expense and difficulty of administration in various directions.

SHADOWS.—XI.

THE shadow thrown by the Corinthian capital in Fig. 35 is found in the following manner:—We first find the shadow traces of the square inclosing the abacus at A A, *a a*. The projection of the points *a*, *a* will give us the cut-off angles. The intersection of the shadow lines from plan and elevation at B gives us the cast shadow of the volutes at B B. The projecting foliage B B is contained by the circle *b b b b* in plan. To obtain the shadow traces of this circle, we first find, as in previous examples, the tr of the containing square at B B. By the in section of the lines from plan and elevatio have the shadows of the foliage B B. The with that at C C, the shadow being at C C. is the point of shadow of the neck moulding shaft of the column.

In Fig. 36 we have the entablature of Corinthian order. We draw the shadow lin 45° from the corresponding points in both and elevation. Their intersection will giv the shadow points. The shadow of A *a*, at A A, B B, that of E E at E E, and G at A portion of the projecting modillons C *c*, K *k* receives the rays of light. A portion of shadows will therefore project beyond the sha of the cornice. The intersection of the projec of the line from C C on plan with that from elevation will give us the shadows of C *c* at C C, that of D *d* at D D, and that of K *k* at A portion of the shadow of F is thrown on to frieze at F.

This brings the series of elementary shad to an end. The student who has carefully lowed the preceding articles and examples sh now find little difficulty in rapidly solving ordinary problem of cast shadows. Nat shadows, and those of the interior of buildi &c., are more complicated; but a little pe verance and a careful attention to the ordi rules will soon enable him to overcome difficulty.

THE ARCHITECTURAL ASSOCIATI CONVERSAZIONE.

THE annual conversazione of the Architect Association, inaugurating the new sess took place at the Town Hall, Westmin on Tuesday evening, and passed off successf and smoothly. The decorations of the assembly hall, although not carried out on thing like so elaborate a scale as last year, effective and well arranged. Under a cano pavilion, immediately facing the entr corridor, the President, Mr. Frank T. Bagga and the committee received their seven hun guests. The stage was occupied by a band o Coldstream Guards, who played selection music throughout the evening. At the opp end of the hall Messrs. Woollams and Co.

Marylebone, displayed a great variety of their hand-made papers, among which we noticed the Kelvin, Halcyon, and King's College designs—the names of the artists were not given. Messrs. Hayward and Son, of Newgate-street, and Messrs. C. Hindley and Son, of Oxford-street, exhibited art furniture. Messrs. Jeffrey and Co., of Essex-street, Islington, showed on the stairs a large selection of wall-papers, many (including the Cockatoo, Genoese, Strasburg, and Chestnut Blossom), designed by Mr. Walter Crane, and others by Mrs. C. F. A. Voysey (a lotus pattern, executed in coloured lacquers), and Mr. Gemmel. Messrs. Pitman and Son exhibited gold and silver embroidery, Japanese in motif, and Messrs. Bontor hung some large Oriental carpets. The electric lighting throughout the building was executed by Messrs. Strode and Co., of Osnaburgh-street and St. Paul's Churchyard, and added not a little to the effect of the decorations. Messrs. Strode also had a choice display of art metal work. In the suite of rooms on the first floor of the building was exhibited the work executed by the students during the past year, including the drawings and designs submitted in the various class competitions. A large series of plates and drawings by the late Mr. John D. Sedding, forming part of the proposed memorial book, received much attention; while another interesting feature was the sketches by past masters of the water-colour class, including works by Messrs. G. H. Fellowes Prynne, W. Wonnacott, Edward Greenop, and E. H. Sim. Perhaps the room which attracted most interest was the long end one, where were hung, by permission of H.M. First Commissioner of Works, the competition drawings for the extension of the South Kensington Museum. The following is the

PRIZE LIST.

Architectural Association Travelling Studentship.—Kotari Sakurai.
Prize for Measured Drawings.—Not awarded.
Association Medal.—Alfred Cox.
Essay Prize or Medal.—1st, W. Wonnacott; 2nd, J. A. Pywell (special prize of five guineas).
Cates Prize.—H. G. Gamble.
Sketchbook Prize.—Not awarded.
Lectures on History of Architecture.—1st, £5 5s., J. Murray; 2nd and 3rd, not awarded.
Lectures on Construction.—1st, £3 3s., W. C. Waymouth; 2nd, £2 2s., H. G. Collins; 3rd, £1 1s., A. Stratton.
Elementary Class of Construction.—1st, £3 3s., C. E. Salmon; 2nd, £2 2s., A. Stratton.
Elementary Class of Ornament.—1st, F. A. Cameron Smith; 2nd, A. W. Jarvis; 3rd, H. Jefferis.
Class of Design.—1st, H. G. Lidstone; 2nd, J. C. Stockdale; 3rd, W. A. Lewis.
Class of Colour Decoration.—Time Sketches.—1st, J. D. Cooper; 2nd, M. Garbutt.
Class of Construction.—1st, £3 3s., H. E. Matthews; 2nd, £2 2s., J. C. Stockdale.
Advanced Class of Construction.—1st, £3 3s., John Murray.
Class for Study of Quantity Surveying and Specification Writing.—1st, £3 3s., J. P. Clarke; 2nd, £2 2s., W. B. Parry; 3rd, not awarded.
Session 1891-2.—Two scholarships, each of the value of £10 10s. per annum, and tenable for two years, eligible for students entering the first year: E. A. Rickards and A. J. Stratton.
Two scholarships, each of the value of £10 10s. per annum, and tenable for two years, eligible for students entering the third year: W. C. Waymouth and C. C. Winmill.

IRON PILES.

ENGINEERS who have had experience in the erection of lighthouses and bridges of iron on screw-piles, say that the life of iron in sea-water is considerable in those conditions. Solid wrought-iron piles have been known to stand with only a very slight corrosion. The experiments made by Mallet and others, to discover the amount of corrosion, prove that cast iron immersed in clear salt water is practicably indestructible, as the rate of corrosion is so slow that a whole century would not cause a greater corrosion than one-tenth of an inch. But the effect of less pure water must be taken into account, especially when wrought iron is used, and we have noticed a considerable corrosion in wrought-iron piles in piers constructed at many of our watering-places. At any rate, the safest plan is to specify solid wrought-iron piles in submerged sea structures, both with the object of discounting the effects of corrosion, and also of rendering the piles strong enough to resist sudden blows from vessels during stormy weather.

Messrs. Lumleys, the auctioneers, of 22, St. James's-street, who have carried on business for the last 38 years, wish it to be known that they have no connection with a firm of a somewhat similar name who have lately opened in St. James's-street.

WAYSIDE NOTES.

I THINK that an astronomical or meteorological observatory as well deserves the name of "building" as a hut for the protection of mountaineers. It is not exactly clear upon what grounds the promoters of the scheme for an Alpine Club hut on the Signal Peak of Monte Rosa claim that when erected the hut will be "the highest building in the world." Unless the proposed observatory on the summit of Mont Blanc is to be on the summit nominally only, and practically some considerable distance lower, the Alpine Club hut will have to do homage to the observatory, providing, again, that the latter enterprise, of the commencement of which we heard recently, is successfully carried through.

Information from Berne says that the "hut" is already being built, the cost being largely borne by the Italian Alpine Club, Queen Margherita of Italy assisting with a considerable sum. Further, we learn that Ferrari, the Italian engineer of electro-technical fame, proposes to construct the roof of the hut of copper, in order to protect it from lightning. The altitude of the building is stated as fifteen thousand feet. I trust that from time to time information may come to hand as to the progress of the works which cannot be but of interest to the architect and engineer of this country who has no opportunities for building huts or any other erections above the line of perpetual snow.

It was a frequent argument of my old master that if explorations were conducted in the bed of the Tiber at Rome, great and abundant discoveries would be made of relics of antiquity. I believe I have mentioned the fact before on some occasion connected with discoveries at Rome, and now we have an earnest of the truth of the proposition in the find made whilst excavations have been progressing for the Tiber Embankment. The fragments of a "fine marble statue of the best period of Greek art" have been discovered. The head is said to be of extraordinary beauty and well preserved, and so far as the fragments have been put together, an eminent sculptor and accomplished painter pronounce the statue to be a *chef d'œuvre* of Grecian art. It will be shortly exhibited to the public in the new Museum of the Baths of Diocletian, where other important objects lately found in the embankment works are preserved. It seems to me that before the works for the Tiber Embankment are completed, we shall have many such finds reported, and the new museum enriched by all kinds of relics of old Roman times. People say that the face of the earth is growing void of novelty, and nothing new is to be discovered. Fortunately, we have only just to go below the skin to find objects of interest that, paradoxical as it may seem, are new and novel just because they are so old.

Respecting the proposals of the Egyptian Government to provide a storage reservoir for the waters of the Nile, it has been finally determined to invite an international commission of engineers to meet at Cairo and advise as to the question. It is stated that the commission will be required to select a site to the north of Wady Halfa, or within the present limits of Egypt. The definite constitution of the commission will not be made known until the return of Sir C. Scott Moncrieff, who is expected to arrive in about a fortnight. Certain schemes, however, have been arranged to be put before the commissioners. Five such schemes will be submitted for their consideration. Three of these are associated with the names of (1) the late M. de la Motte, at Gebel Silielek; (2) Mr. Willcocks, at Assouan; and (3) M. Prompt, French administrator of Egyptian Railways, between Assouan and Halfa. All of these schemes contemplate the construction of dams and the "ponding-up" of the river in the valley itself. Mr. Willocks also advocates supplementing the supply by reservoirs in the Delta, on the edge of the Desert. Project No. 5 is that of Mr. Cope Whitehouse, and is based on the proposed restoration of the Raiyan Basin of Lake Moeris. The fourth scheme—unless Mr. Willocks' supplementary reservoir system is to be taken as such—is not stated. I only hope that the old ruins will be considered, and Philæ, at least, spared, although I am not so sodden in fanatical archæologicalism that I would not believe it to be better that all the old temples should be drowned out, so long as the result made a better country for the Egyptians and yet greater supplies of "corn in Egypt."

Carshalton Church is going to be restored, works being already in progress. A new chancel is to be erected, the Duchess of Albany having laid the corner stone thereof on Saturday last. All who knew old Carshalton Church as of yore, as the fane of "the prettiest village in England," according to Mr. Ruskin—and the place deserves every eulogy—and learn that £10,000 is to be expended on a new chancel and other alterations, will readily understand that the future Carshalton Church and the Carshalton Church of days gone by will be two very different things. A reporter of the ceremonial on Saturday last, says of the present building that "the whole structure has been altered and enlarged at such diverse periods that it has no particular style or harmony of its own." Therefore, I suppose our friend would argue, the new addition is not only justifiable, but desirable. Pitiable delusion! Carshalton Church, as I knew it, was one of those buildings where every addition made in times past—being modestly made, and without the expenditure of ten thousand pounds — adds to the charm of the whole; so that not only is it a parade of ignorance to say that Carshalton Church has no harmony of its own, but it is abundantly clear, to those capable of judging, that the building is, above all things, remarkable for harmony. Much credit is there in a design of one style only that has harmony of effect. The attribute comes naturally. On the other hand, it is no common thing to find harmony in a patchwork. Where we find it, therefore, we value it; and, apart from my own particular associations with Carshalton Church, I am sorry to learn that much gold is to be expended on an addition that must destroy the old harmony. Of course, it is only the few that can appreciate the beauties of old buildings like Carshalton Church as it once was. Here a window out of symmetry, there a door askew, a breadth of masonry here, and a patch of brickwork there. No formal nave and aisles, no "everlasting Early English pyramid," as someone wrote—Leeds, was it not?—and an absence of all the hackneyed features of Neo-Mediæval churches, appeals not to the average passer-by; while the whole glorious company of Philistines can appreciate a brand-new chancel, Perpendicular or otherwise; and failing even that insignificant amount of architectural knowledge, all men—Mammon itself—will be dazzled with the glitter of the ten thousand golden pieces.

Once more the question of Metropolitan improvements has been before the County Council, but with no results. Councillors refuse to entertain the schemes brought forward. Some explanation may be found in the fact that the council has very divergent opinions as to "betterment" and other questions concerning the manner of raising the funds for the payment of the cost of the improvements. Tuesday last saw the throwing-over of the recommendations for the several proposed improvements. An amendment on the recommendations of the Improvements Committee, to the effect that the Boziers-court scheme, which provides for the widening of Tottenham-court-road, should not be undertaken, was carried by 45 to 36 votes. The cost of this improvement is put down at £42,900. In like manner the recommendation as to the Strand improvements at Holywell-street was disagreed with, 54 as against 28 councillors voting that "the improvement was not necessary," and 43 to 35 votes negatived the recommendation of the committee in favour of a scheme for a new street from Tooley-street to Star-corner, Bermondsey. Even the consideration of the report on the water supply was postponed *sine die*, so procrastinating were councillors. GOTH.

At a meeting of the directors of the Blackpool Tower Company, held on Friday night, it was decided to proceed with the erection of the tower forthwith, according to Messrs. Maxwell and Tuke's plans. It was only originally intended to have the surrounding buildings ready for next season; but estimates for the erection of the tower proper are now being procured, and the work of erection will be pushed on with all possible speed.

The new schools, Taunton, are being warmed and ventilated throughout by means of Shorland's patent Manchester grates, the same being supplied by Mr. E. H. Shorland, of Manchester.

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ILLUSTRATIONS.

THE NEW PROPOSED SOUTHAMPTON FREE LIBRARY.—CARLISLE-STREET BOARD SCHOOL, SHEFFIELD.—A FIRE-PLACE IN NEW BILLIARD-ROOM AT MILL HILL.—ARMS OF THE PODESTAS IN THE COURTYARD OF THE BARGELLO, FLORENCE.—A COUNTRY PARSONAGE.—THE CHURCH OF ST. OLAVE, OLD JEWRY.

Our Illustrations.

SOUTHAMPTON FREE LIBRARY—SELECTED DESIGN.

We reviewed the leading designs sent in for this work in our issue for Sept. 11th last, and to-day we illustrate both the first and second premiated plans. The elevations of the selected design speak for themselves; but we have omitted the front intended to face Bedford-road, as it is devoid of interest. The principal idea which marks the arrangement of the plan is certainly clever enough, though we understand several modifications are considered necessary. The referee, in his report, placed this design as unquestionably the best. Whether, taken as a whole, it will prove so satisfactory in execution remains to be seen. Without remarking upon the architectural character of the design as unnecessary here, we may be permitted to question whether, for so important and prominent a site, the façades are of sufficient elevation, or worthy of it. The chimneys from the committee room and living-room above are omitted in the drawings of the façade. That against the central turret would not improve that feature. Mr. A. E. J. Guy, of Southsea, is the author of this design, and the cost for the part at first to be erected is £3,500. The second premiated design is by Mr. S. R. J. Smith, of Lambeth. His elevations, though of more style, consist of a series of set-offs to accommodate a square arrangement to the irregular shape of the land, and this plan for one thing necessitates the news-room windows being located behind the building line of the adjoining property in London-road. The committee-room doorway is close to the caretaker's scullery, next the w.c. at the top of the circular staircase. The staff lavatories have to be reached by either passing through the librarian's room, or coming out into the open porch in front, and so passing down the caretaker's staircase into the basement. The reference library is entirely isolated from the lending library. We have already remarked upon the loss of space caused by the series of areas along the boundary of the site.

CARLISLE STREET SCHOOLS, SHEFFIELD.

This board school was opened lately, and consists of a main schoolroom and four classrooms on each floor, with the usual cloakrooms, teachers' rooms, lavatories, &c., accommodation being provided for a total of 720 children. There are two entrances for each sex, which are so arranged that the children can enter or leave any of the classrooms without passing through the main schoolroom. All staircases and corridors are lined with glazed bricks to a height of 5ft., and the internal fittings throughout are of pitch-pine, stained and varnished. The heating is by hot water on the low-pressure system, and the ventilation by Tobin's fresh-air inlets and air-pump ventilators on the roofs. All windows and glazed screens are also fitted with opening casements. There are playgrounds of ample dimensions, and in each is a covered playshed, with fountain. The walls are of stone from Crooke's, near Sheffield, with dressings from Grenoside, and the roofs are covered with dark Westmoreland slates and red ridge tiles. The building has been erected from designs submitted in competition by Messrs. Herbert Hodgson, A.R.I.B.A., and Jas. E. Benton, M.S.A., of Sheffield and Bradford, who, in the same competition, were also placed first for another school by Mr. Robson, the assessor, and were awarded the second premium by the Board. The general contractors were Messrs. T. Lowe and Sons, of Burton-on-Trent, and Mr. Jno. Laidler has acted as clerk of works. The drawing was exhibited at the Royal Academy this year.

MANTELPIECE, COPT HALL, MILL-HILL, N.W.

This fireplace is in the billiard-room recently added to Copt Hall, Mill-hill, N.W., for Mr. C. R. Hodgson. The mantelpiece and wainscotting are of oak, dull polished. The smoke-guard is brass repoussé. The repoussé is by the Nottingham Class of the Social Guild, from the designs of Messrs. Arthur Marshall, A.R.I.B.A., and George Turner, architects, Nottingham.

ARMS OF THE PODESTAS IN THE COURTYARD OF THE BARGELLO, FLORENCE.

The Palace of the Podestà at Florence, now better known as the Bargello, in the Via del Proconsolo, opposite the Badia at Florence, was famous as the palace of the chief criminal magistrate of the city, though subsequently, under Cosimo I., it was turned into a prison at the time he abolished the office of Potestà and assigned the palace to the Bargellor, or Head of the Police. The law enacted, when the position of Potestà was first created in 1199, that their officer should be always a foreigner, a noble, a Roman Catholic, and a Guelf. In 1250, however, a Ghibelline named Ranieri de Montemurlo was elected, which caused an insurrection of the people, who chose a new governor, and fortified the old tower of the Boscoli and the adjoining buildings at his residence. The chief power continued in the hands of the Potestà till 1462, when it was restrained by a tribunal called Giudici alla Ruota. The greater part of the palace is due to Arnolfo di Lapo, the son of Lapo and pupil of Cimabue. He continued it after two Dominican monks named F. Sisto, of Florence, and F. Ristori de Campi had commenced the building, which is said to have been planned by a German architect, who was nicknamed Lapo (an abbreviation of Jacopo), whose family name was never known. Upon the outside of the older tower, facing the Via del Palagio, were frescoes of the Duke of Athens and his associates, hanging, but they are no longer visible. The bell within, called the *Montanara*, obtained the name of *La Campana delle Armi*, because it was the signal for citizens to lay aside their weapons and retire home. Afterwards it tolled the condemned man's hour of execution. The street below the Bargello witnessed on August 1, 1343, one of the most frightful scenes of Florentine history. The Duke of Athens had taken refuge in the fortress, and the members of the noble families of Florence, Medici, Recultai, and others, who had suffered from his tyranny, were besieging him. They demanded, as the price of his life, that the Conservatore Guglielmo d'Assisi and his son, a boy of eighteen, who had been the instruments of his cruelty, should be given up to them. Forced by hunger, he caused them to be pushed out of the half-closed door to the populace, who tore them limb from limb, hacking the boy to pieces first before his father's eyes, and then parading the bloody fragments on their lances through the streets. Other scenes of a possibly less tragic character could be enumerated in connection with the history of the proud palace of the Pretorio during the continued changes which occurred in that indomitable, excitable, and yet severe and obstinate community of Florence. By degrees the palace was extended towards the east, the portico, the loggia, and the adjoining halls, which were slowly proceeded with till 1316, when the works were pushed on with greater activity. To the six guilds was added a seventh—a kind of democratic aristocracy under the title of "Popolo Grasso," which daily increased in power and influence. The nobility and the "Popolo Munuto" were entirely dependent upon them. The "Signoria" in their pride went so far as to make King Charles Robert of Naples (1313) one of their members. He oppressed them, first through his agents, and then through his son, Duke Charles of Calabria, until they intrusted Walther of Brienne with a kind of dictatorship. He was carried through the intensely picturesque courtyard (from whence our illustration is taken to-day) into the palace on the shoulders of the nobility. The great staircase built by Agnolo Gaddi early in the 14th century, forms the most conspicuous feature in this beautiful courtyard, which was the theatre of many of the principal events that desolated the city, and also witnessed all the executions of capital sentences since that time. Niccolò de' Lapi, the hero of Massimo d'Azeglio's novel, was beheaded near the well in the centre of the courtyard in 1530. The arms of the Duke of Athens hang near the entrance, followed by those of the two hundred and four Podestàs who ruled afterwards in Florence. The few we have chosen for illustration are typical of the rest, and are chiefly of 15th-century date. They are situated on the spandrel between the two archways over the first pier next the staircase below the upper loggia, which was built by Orcagna, one of the architects of the Duomo at Florence, and probably the designer of the frescoes in the Campo Santo. The palace now forms the National Museum, and has been used for this purpose since 1865. It is open daily from ten to four, and on Sundays is free. Several general drawings of the Podestà Palace will be found published in the Building News for July 4th, 11th, 18th, and 25th, and for August 1st, 1873.

A COUNTRY PARSONAGE, FROM THE ROYAL ACADEMY EXHIBITION.

The whole of the exterior brickwork is intended to be built in red brick of a light colour; the stone-work to centre portion by principal entrance to be of yellow Mansfield, the half-timber work to be of English oak creosoted, the roofs being covered with Broseley tiles of a dark colour. The architect is Mr. F. H. Tulloch, A.R.I.B.A., of Hampstead.

CHURCH OF ST. OLAVE, OLD JEWRY.

This church, which has been a mere carcase for the last four years, will shortly disappear in favour of a block of City offices. The churchyard will, it is believed, be laid out as an open space, while the vacant site on the north side of the yard is reserved for a rectory-house for the now united parishes of St. Olave, Old Jewry, and St. Margaret, Lothbury. The better-known east front in Old Jewry is pedimented, with a triple-light east window surmounted by three lunettes, the lights separated by Corinthian pilasters. Over the arched centre light is a projecting drum clock. Although one of the plainest of Wren's churches, yet the mouldings are refined, in a good state of preservation, and worthy the notice of the student of the English Renaissance. The sketch from Ironmonger-lane shows the tower unmistakably Gothic in outline, but with Classic detail. The site, as reported in the Building News of July 24th (*q.v.*), was sold at the rate of about £9 per square foot.

W. Clarke Ashworth.

CHIPS.

A clock with gravity escapement, compensated pendulum, striking the hours, and showing time on one dial, 5ft. in diameter, has been erected in the parish church, Inkberrow, by J. B. Joyce and Co., of Whitchurch, Shropshire.

A partnership has been entered into by Mr. Arthur H. Mackmurdo, Mr. George Hornblower, and Mr. E. Stanley Walters, architects, under the style of Mackmurdo, Hornblower, and Walters, and their places of business are 94, Charlotte-street, Fitzroy-square, W., and 15, Lord-street, Liverpool.

The newly-appointed burial board for Dundalk have appointed Mr. Gaskin as their architect for the cemetery, the commission to be five per cent. on the structural outlay.

Albany-street Congregational Church, Edinburgh, was reopened on Sunday after internal alterations and decorations carried out by Mr. A. Hutton, Dundas-street, Edinburgh.

New board schools at Beaumont Park, Acton, were opened on Saturday. They accommodate 1,029 children, and cost £9,800

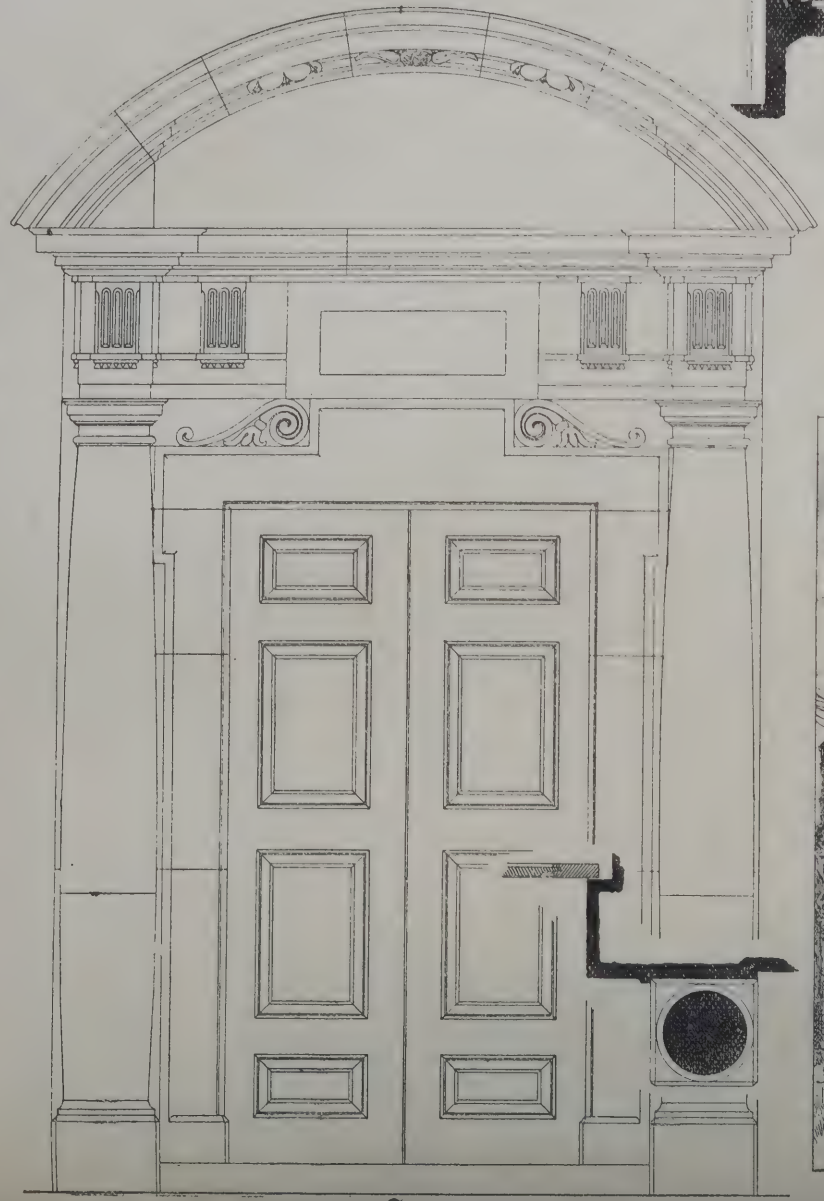


Plan of Pediment over West Door [looking up]

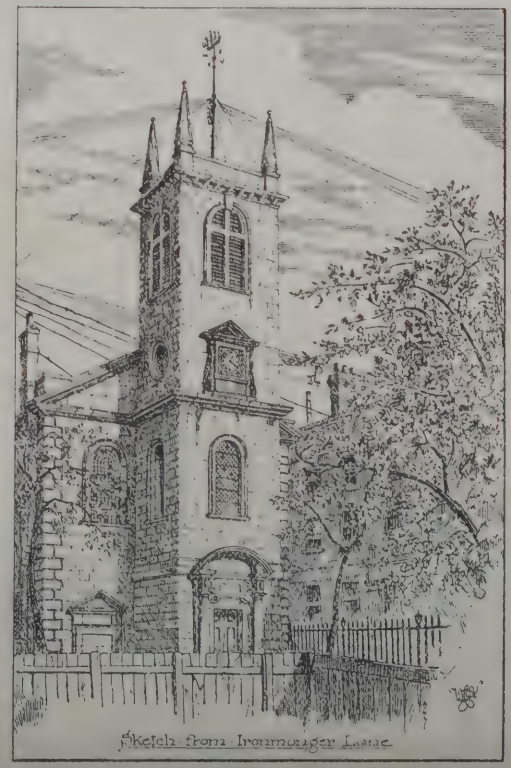
Ch: of St Olave ~ Old Jewry E.C.

designed by Sir C. Wren

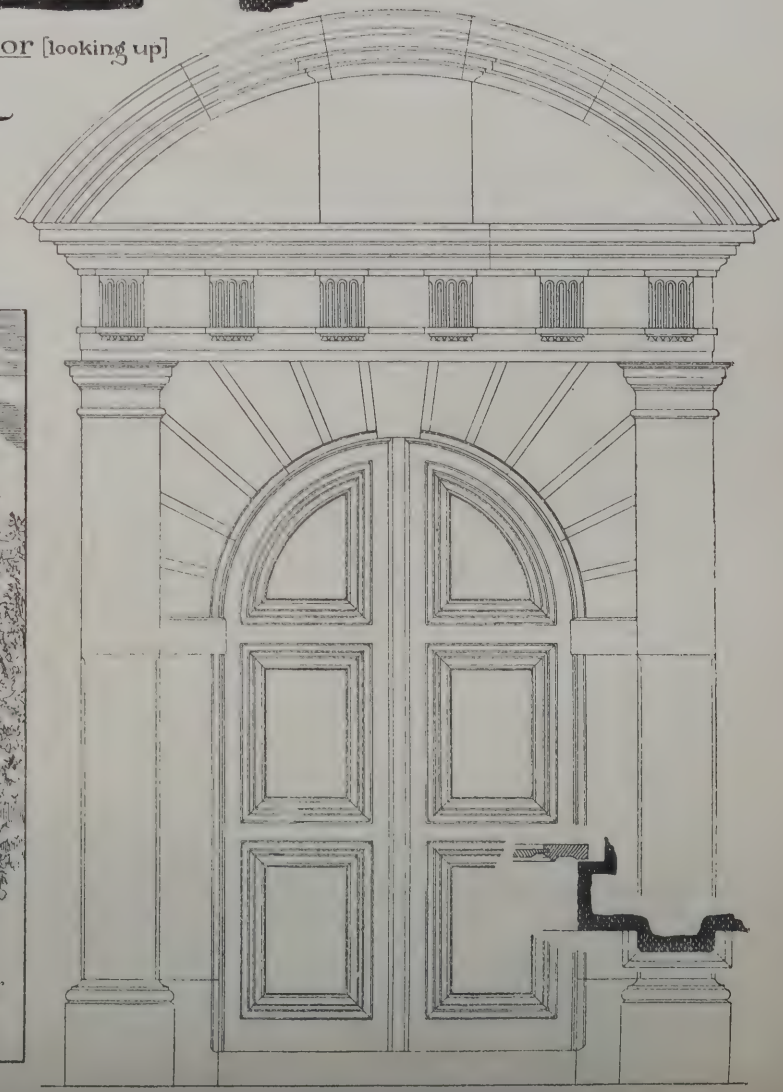
recently sold by auction



The West Door

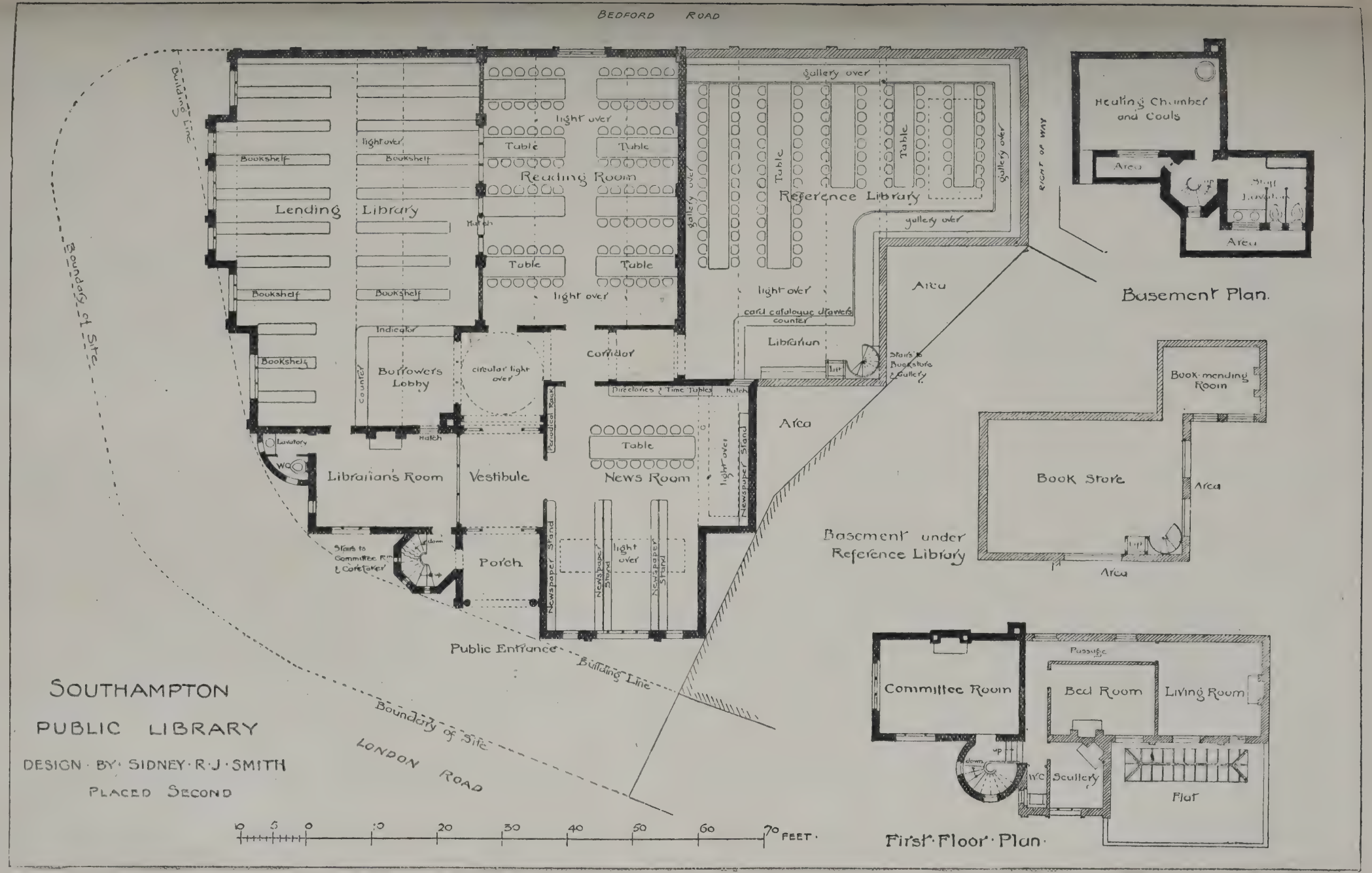


Sketch from Ironmonger Lane



The South Door

SCALE:



SOUTHAMPTON

PUBLIC LIBRARY

DESIGN BY SIDNEY R.J. SMITH

PLACED SECOND

PRICES.—XIX.*

(All Prices Include Profit).

JOINER (*continued*).

		£	s.	d.
ar and materials—				
g grounds 1½ wide, bevelled				
ge spiked to walls	per foot run	0	0	0¾
ugged	ditto	0	0	1
2½ wide	ditto	0	0	1
ditto plugged	ditto	0	0	1¾
ditto spiked	ditto	0	0	1
ditto plugged.....	ditto	0	0	1¾
ditto spiked	ditto	0	0	1½
ditto plugged	ditto	0	0	1¾

and mitres are not measured to grounds.
ircular out of the solid at three times
ht.
ieces less than 12in. should be numbered
paid at 50 per cent. beyond ordinary
ns.
to 10 per cent. must be added on all
ght joiners' work that has to be picked
for staining.

in thicknesses. (The following take the
f the list of prices for fir (fixed) in
nter," *ante*) :—

		£	s.	d.
ugh unfixed, including				
.....	per foot super.	0	0	2
ncluding fixing and nails	ditto	0	0	3
dges shot	ditto	0	0	3½
rought one side	ditto	0	0	4½
amed or clamped	ditto	0	0	7
natched and beaded by				
.....	ditto	0	0	5
ovetailed	ditto	0	0	8
rought both sides	ditto	0	0	5
amed or clamped	ditto	0	0	8
natched and beaded by				
.....	ditto	0	0	7
ovetailed or keyed	ditto	0	0	9
in drawers under 2ft.				
.....	ditto	0	0	11
in drawers under 1ft.				
.....	ditto	0	1	3
ploughed and tongued ...	ditto	0	0	1
ross-tongued.....	ditto	0	0	1½
dged	ditto	0	0	1½
beaded or rebated each				
.....	ditto	0	0	1
taff-beaded.....	ditto	0	0	1
lugged.....	ditto	0	0	1
earers	ditto	0	0	2
ugh unfixed, including				
.....	ditto	0	0	2½
ncluding labour and nails	ditto	0	0	3½
dges shot	ditto	0	0	4
rought one side	ditto	0	0	5
amed or clamped	ditto	0	0	8
natched or beaded	ditto	0	0	5½
ovetailed	ditto	0	0	8½
rought both sides	ditto	0	0	5½
nd framed or clamped ...	ditto	0	0	8½
natched and beaded	ditto	0	0	7½
ovetailed	ditto	0	0	9½
ditto in drawers under				
uper.....	ditto	0	0	11½
itto ditto under 1ft. super	ditto	0	1	3½
ploughed and tongued ...	ditto	0	0	1
ross-tongued.....	ditto	0	0	1½
dged	ditto	0	0	1½
eaded or rebated each side	ditto	0	0	1
taff beaded.....	ditto	0	0	1
lugged.....	ditto	0	0	1
earers	ditto	0	0	2
gh deal including waste.	ditto	0	0	3
ncluding labour and nails	ditto	0	0	4
itto edges shot and ditto..	ditto	0	0	4½
rought one side	ditto	0	0	5½
nd framed or clamped ...	ditto	0	0	8½
natched and beaded	ditto	0	0	6
ovetailed.....	ditto	0	0	9
rought both sides	ditto	0	0	6½
nd framed or clamped ...	ditto	0	0	9½
natched and beaded	ditto	0	0	8
ovetailed	ditto	0	0	10
ditto drawers under 2ft.				
.....	ditto	0	1	0
itto ditto under 1ft. super	ditto	0	1	4
ploughed and tongued ...	ditto	0	0	1
ross-tongued.....	ditto	0	0	1½
dged	ditto	0	0	1½
eaded or rebated each side	ditto	0	0	1
taff beaded.....	ditto	0	0	1
lugged.....	ditto	0	0	1
earers	ditto	0	0	2
ugh deal including waste	ditto	0	0	4
ncluding labour and nails	ditto	0	0	5
itto edges shot	ditto	0	0	5½
rought one side	ditto	0	0	6½
nd framed or clamped ...	ditto	0	0	9½
natched and beaded.....	ditto	0	0	7
ovetailed	ditto	0	0	10
rought both sides .....,	ditto	0	0	7½
nd framed or clamped ...	ditto	0	0	10½
natched and beaded	ditto	0	0	9
lovetailed	ditto	0	0	11
ditto in drawers under				
uper.	ditto	0	1	1
itto ditto under 1ft. super	ditto	0	1	5
ght w.c. seat, 1in. riser				
bearers	ditto	0	0	9
frame and clamped, flap				
.....	ditto	0	0	10½
mitre clamped	ditto	0	0	2
ploughed and tongued.....	ditto	0	0	1
cross-tongued.....	ditto	0	0	1½
edged	ditto	0	0	2
beaded or rebated each side	ditto	0	0	1
taff beaded.....	ditto	0	0	1
plugged	ditto	0	0	1
bearers	ditto	0	0	2½
ough deal including waste	ditto	0	0	4½
ncluding labour and nails	ditto	0	0	5½

* All rights reserved by the Author.

		£	s.	d.
1½in. rough deal—				
Ditto ditto edges shot	per foot super.	0	0	6
Ditto wrought one side	ditto	0	0	7
Ditto framed or clamped	ditto	0	0	10
Ditto dovetailed	ditto	0	0	10½
Ditto wrought both sides	ditto	0	0	8
Ditto and framed or clamped ...	ditto	0	0	11
Ditto matched and beaded	ditto	0	0	10
Ditto dovetailed	ditto	0	1	0
Ditto ploughed and tongued	ditto	0	0	1
Ditto cross-tongued.....	ditto	0	0	1½
Ditto beaded or rebated each side	ditto	0	0	1½
Ditto ledged	ditto	0	0	2
Ditto plugged.....	ditto	0	0	1½
Ditto bearers	ditto	0	0	2½
1½in. w.c. seat wrought and fixed, including bearers and 1¼ riser, all supered over surface.....	ditto	0	0	10
Ditto frame and clamped flap ...	ditto	0	0	11½
Ditto ditto mitre clamped	ditto	0	1	1½
2in. rough deal, no labour, including waste	ditto	0	0	5½
Ditto including labour and nails	ditto	0	0	7
Ditto edges shot.....	ditto	0	0	7½
Ditto wrought one side and edged	ditto	0	0	8½
Ditto ditto framed or clamped...	ditto	0	1	0
Ditto ditto dovetailed	ditto	0	2	1
Ditto ditto two sides and edges	ditto	0	0	9½
Ditto ditto framed and clamped	ditto	0	1	1
Ditto ditto dovetailed	ditto	0	1	2
Add if ploughed and tongued ...	ditto	0	0	1½
Ditto cross-tongued.....	ditto	0	0	2
Ditto beaded or rebated each side	ditto	0	0	1½
Ditto ledged	ditto	0	0	2½
Ditto plugged	ditto	0	0	1¾
Ditto bearers	ditto	0	0	2½
2½in. rough deal, no labour, including waste.....	ditto	0	0	6½
Ditto including labour and nails	ditto	0	0	8
Ditto edges shot	ditto	0	0	8½
Ditto wrought one side and edge	ditto	0	0	9¼
Ditto ditto fran ed or clamped...	ditto	0	1	0½
Ditto ditto dovetailed	ditto	0	1	2
Ditto ditto two sides and edges	ditto	0	0	10½
Ditto ditto framed or clamped...	ditto	0	1	2
Ditto ditto dovetailed.....	ditto	0	1	3
Add if ploughed or tongued.....	ditto	0	0	1½
Ditto cross ditto	ditto	0	0	2
Ditto beaded or rebated each side	ditto	0	0	2
Ditto ledged	ditto	0	0	2½
Ditto plugged	ditto	0	0	1½
Ditto bearers	ditto	0	0	3
3in. rough deal, no labour, including waste.....	ditto	0	0	7½
Ditto including labour and nails	ditto	0	0	9
Ditto edges shot	ditto	0	0	9½
Ditto wrought one side	ditto	0	0	10½
Ditto ditto framed and clamped	ditto	0	1	2
Ditto ditto dovetailed	ditto	0	1	3½
Ditto ditto two sides	ditto	0	1	0
Ditto ditto framed or clamped...	ditto	0	1	3½
Ditto ditto dovetailed	ditto	0	1	4½
Add if ploughed or tongued	ditto	0	0	2
Ditto cross ditto	ditto	0	0	2½
Ditto beaded or rebated each side	ditto	0	0	2
Ditto ledged	ditto	0	0	2½
Ditto plugged.....	ditto	0	0	2
Ditto bearers	ditto	0	0	3
Honduras mahogany—				
¼in. rough, including waste	ditto	0	0	7
Ditto fixed with nails	ditto	0	0	9
Ditto ditto screws	ditto	0	0	10
Add for wrought one side and edge	ditto	0	0	2
Ditto ditto two ditto.....	ditto	0	0	4
Ditto glue blocking	ditto	0	0	2
Ditto framed or clamped	ditto	0	0	4
Ditto keyed on back	ditto	0	0	2
Ditto dovetailed	ditto	0	0	10
Ditto ditto under 2ft.....	ditto	0	0	6
Ditto ditto ditto 1ft.....	ditto	0	0	8
Ditto ploughed and tongued.....	ditto	0	0	10
Ditto cross-tongued.....	ditto	0	1	0
Ditto beaded each side	ditto	0	0	1
Ditto if in wide widths—i.e., over 12in.....	ditto	0	0	2
Ditto if scraped for polishing each side	ditto	0	0	2
¾ rough, &c.	ditto	0	0	10
Ditto fixed with nails	ditto	0	1	0
Ditto ditto screws	ditto	0	1	1
Add if wrought one side and edge	ditto	0	0	2
Ditto ditto ditto two.....	ditto	0	0	4
Ditto glue blocked	ditto	0	0	2
Ditto framed or clamped	ditto	0	0	7
Ditto keyed on back	ditto	0	0	6
Ditto dovetailed	ditto	0	0	9
Ditto ditto under 2ft.....	ditto	0	0	11
Ditto ditto ditto 1ft.....	ditto	0	1	1
Ditto ploughed and tongued.....	ditto	0	0	1½
Ditto cross-tongued.....	ditto	0	0	2
Ditto beaded each side	ditto	0	0	1
Ditto if in wide widths	ditto	0	0	2
Ditto if scraped for polishing each side	ditto	0	0	2
1in. rough, &c.	ditto	0	1	0
Ditto fixed with nails.....	ditto	0	1	2½
Ditto ditto screws	ditto	0	1	4
Add if wrought one side and edge	ditto	0	0	2
Ditto ditto two.....	ditto	0	0	4
Ditto glue blocked	ditto	0	0	2
Ditto framed or clamped	ditto	0	0	8
Ditto if mitre clamped to this ...	ditto	0	0	3
Ditto keyed on back	ditto	0	0	6
Ditto dovetailed	ditto	0	0	10
Ditto ditto under 2ft.	ditto	0	1	0
Ditto ditto ditto 1ft.	ditto	0	1	2
Ditto ploughed and tongued.....	ditto	0	0	1½
Ditto ditto cross-tongued...	ditto	0	0	2
Ditto beaded each side	ditto	0	0	1
Ditto if in wide widths	ditto	0	0	2
Ditto if scraped, each side.....	ditto	0	0	2

		£	s.	d.
1¼ rough, &c.	per foot super.	0	1	3
Ditto fixed with nails	ditto	0	1	6
Ditto ditto screws.....	ditto	0	1	7
Add if wrought one side.....	ditto	0	0	2½
Ditto ditto two	ditto	0	0	5
Ditto glued and blocked	ditto	0	0	2
Ditto framed or clamped	ditto	0	0	8
Ditto if mitre clamped, add	ditto	0	0	3
Ditto if keyed on back	ditto	0	0	7
Ditto dovetailed	ditto	0	0	10
Ditto ditto under 2ft.	ditto	0	1	0
Ditto ditto ditto 1ft.	ditto	0	1	2
Ditto ploughed and tongued.....	ditto	0	0	1½
Ditto ditto cross-tongued ...	ditto	0	0	2
Ditto beaded each side	ditto	0	0	1½
Ditto if in wide widths	ditto	0	0	2½
Ditto if scraped, each side	ditto	0	0	2
Ditto framing flaps to counters, hung complete, extra	ditto	0	0	9
Tongued beading joints	per foot run	0	0	6
1¼ by 3 moulded edging screwed on	ditto	0	0	9
2 by 3 ditto	ditto	0	1	0
1¼in. rough, &c.	ditto	0	1	6
Ditto fixed with nails	ditto	0	1	9
Ditto ditto screws	ditto	0	1	10
Add if wrought one side and edge	ditto	0	0	2½
Ditto ditto two ditto ...	ditto	0	0	5
Ditto glue-blocked	ditto	0	0	2
Ditto framed or clamped	ditto	0	0	8
Ditto if mitre clamped *also*, add	ditto	0	0	3
Ditto keyed on back.....	ditto	0	0	7
Ditto dovetailed	ditto	0	0	10
Ditto ditto under 2ft.....	ditto	0	1	0
Ditto ditto ditto 1ft.....	ditto	0	1	2
Ditto ploughed and tongued.....	ditto	0	0	2
Ditto ditto cross-tongued	ditto	0	0	2½
Ditto beaded each side	ditto	0	0	2
Ditto if in wide widths	ditto	0	0	3
Ditto if scraped each side	ditto	0	0	2
Ditto framing flaps to counters, hung complete, extra.....	ditto	0	0	9
Ditto tongued heading joints ...	per foot run	0	0	6
Ditto 1¼ by 3 moulded edging screwed on	ditto	0	0	9
Ditto 2 by 3 ditto ditto ...	ditto	0	1	0
2in. rough, &c.	ditto	0	1	11
Ditto fixed with nails	ditto	0	2	3
Ditto ditto screws	ditto	0	2	5
Add if wrought one side and edge	ditto	0	0	2½
Ditto ditto two ditto ...	ditto	0	0	5
Ditto framed or clamped	ditto	0	0	9
Ditto if mitre clamped, add	ditto	0	0	4
Ditto keyed on back	ditto	0	0	8
Ditto ploughed and tongued.....	ditto	0	0	2½
Ditto ditto cross-tongued	ditto	0	0	3
Ditto beaded each side	ditto	0	0	1½
Ditto if in wide widths	ditto	0	0	4
(An allowance must be made for planks exceptionally long.)				
Spanish mahogany—				
¼in. rough, no labour, including waste.....per foot super.		0	0	9
Ditto including labour and nails	ditto	0	0	11
Ditto ditto ditto screws	ditto	0	1	1
Add for wrought one side and edge	ditto	0	0	3
Ditto ditto two sides and edge	ditto	0	0	6
Ditto ditto glue blocking.....	ditto	0	0	2
Ditto framed or clamped	ditto	0	1	0
Ditto keyed on back.....	ditto	0	0	7
Ditto dovetailed	ditto	0	0	10
Ditto ditto under 2ft.....	ditto	0	1	0
Ditto ditto ditto 1ft.....	ditto	0	1	2
Ditto ploughed and tongued ...	ditto	0	0	2
Ditto ditto cross-tongued	ditto	0	0	3
Ditto beaded or rebated each side	ditto	0	0	1½
Ditto if in wide widths	ditto	0	0	3
Ditto if scraped for polishing, each side	ditto	0	0	3
¾in. rough, &c.	ditto	0	1	0
Ditto including labour and nails	ditto	0	1	2
Ditto ditto ditto screws	ditto	0	1	4
Add for wrought one side	ditto	0	0	3
Ditto ditto two	ditto	0	0	6
Ditto glue blocking	ditto	0	0	2
Ditto framed or clamped	ditto	0	1	1
Ditto keyed on back	ditto	0	0	8
Ditto dovetailed	ditto	0	0	11
Ditto ditto under 2ft.....	ditto	0	1	1
Ditto ditto ditto 1ft.....	ditto	0	1	3
Ditto ploughed and tongued.....	ditto	0	0	2
Ditto cross-tongued.....	ditto	0	0	3
Ditto beaded or rebated, each side	ditto	0	0	1½
Ditto if in wide widths	ditto	0	0	3
Ditto if scraped for polishing ...	ditto	0	0	3
1in. rough, &c.	ditto	0	1	4
Ditto including labour and nails	ditto	0	1	7
Ditto ditto ditto screws	ditto	0	1	8
Add for wrought one side and edge	ditto	0	0	3
Ditto ditto two ditto	ditto	0	0	6
Ditto glue blocking	ditto	0	0	2
Ditto framed and clamped	ditto	0	1	2
Ditto keyed on back	ditto	0	0	9
Ditto dovetailed	ditto	0	1	0
Ditto ditto under 2ft.	ditto	0	1	2
Ditto ditto ditto 1ft.	ditto	0	1	4
Ditto ploughed and tongued	ditto	0	0	2
Ditto ditto cross-tongued	ditto	0	0	3
Ditto beaded or rebated, each side	ditto	0	0	1½
Ditto if in wide widths	ditto	0	0	4
Ditto if scraped for polishing each side	ditto	0	0	3
1¼in. rough &c.	ditto	0	1	8
Ditto including labour and nails	ditto	0	1	11
Ditto ditto ditto screws	ditto	0	2	0
Add for wrought one side and edge	ditto	0	0	3
Ditto ditto two ditto	ditto	0	0	6
Ditto glue blocking	ditto	0	0	2

		£	s.	d.
1½in. rough, &c.—				
Ditto framed or clamped	per foot super.	0	1	3
Ditto keyed on back	ditto	0	0	10
Ditto dovetailed	ditto	0	1	1
Ditto ditto under 2ft.	ditto	0	1	3
Ditto ditto ditto 1ft.	ditto	0	1	5
Ditto ploughed and tongued	ditto	0	0	2
Ditto cross-tongued	ditto	0	0	3
Ditto beaded or rebated, one side	ditto	0	0	1½
Ditto if in wide widths	ditto	0	0	5
Ditto if scraped for polishing, each side	ditto	0	0	3
(An allowance must be made for planks exceptionally long.)				
1½in. rough, &c.	ditto	0	1	11
Ditto, including labour and nails	ditto	0	2	2
Ditto ditto ditto screws	ditto	0	2	3½
Add for wrought one side and edge	ditto	0	0	3
Ditto ditto two ditto	ditto	0	0	6
Ditto glue blocking	ditto	0	0	2
Ditto framed or clamped	ditto	0	1	4
Ditto keyed on back	ditto	0	0	10
Ditto dovetailed	ditto	0	1	2
Ditto ditto under 2ft.	ditto	0	1	4
Ditto ditto ditto 1ft.	ditto	0	1	6
Ditto ploughed and tongued	ditto	0	0	2
Ditto cross-tongued	ditto	0	0	3
Ditto beaded or rebated each side	ditto	0	0	1½
Ditto if in wide widths	ditto	0	0	6
Ditto if scraped, each side	ditto	0	0	3
2in. rough, &c.	ditto	0	2	6
Ditto including labour and nails	ditto	0	2	10
Ditto ditto ditto screws	ditto	0	3	0
Add for wrought one side and edge	ditto	0	0	3
Ditto ditto two ditto	ditto	0	0	6
Ditto glue blocking	ditto	0	0	2½
Ditto framed or clamped	ditto	0	1	5
Ditto keyed on back	ditto	0	0	11
Ditto dovetailed	ditto	0	1	3
Ditto ploughed and tongued	ditto	0	0	2½
Ditto cross-tongued	ditto	0	0	3½
Ditto beaded each side	ditto	0	0	1½
Ditto if in wide widths	ditto	0	0	7
Ditto if scraped each side	ditto	0	0	3
2½in. rough, including waste	ditto	0	3	0
Ditto including labour and nails	ditto	0	3	4
Ditto ditto ditto screws	ditto	0	3	6
Ditto wrought one side	ditto	0	0	3
Ditto ditto two sides	ditto	0	0	6
Ditto framed or clamped	ditto	0	1	6
Ditto ploughed and tongued	ditto	0	0	2½
Ditto cross-tongued	ditto	0	0	3
Ditto beaded each side	ditto	0	0	1½
Ditto if in wide widths	ditto	0	0	8
Ditto if scraped, each side	ditto	0	0	3
Wainscot oak—				
¾in. rough, including waste	ditto	0	0	8
Ditto including labour and nails	ditto	0	0	10
Ditto ditto ditto screws	ditto	0	0	11
Add for wrought one side and edge	ditto	0	0	2
Ditto ditto two ditto	ditto	0	0	4
Ditto glue blocking	ditto	0	0	2
Ditto framed or clamped	ditto	0	0	10
Ditt keyed on back	ditto	0	0	6
Ditto dovetailed	ditto	0	0	8
Dtto ditto under 2ft.	ditto	0	0	10
Ditto ditto under 1ft.	ditto	0	1	0
Ditto ploughed and tongued	ditto	0	0	1½
Ditto cross tongued	ditto	0	0	2
Ditto beaded each side	ditto	0	0	1
Ditto if in wide widths	ditto	0	0	2
Ditto if scraped for polishing, each side	ditto	0	0	2
¾in. rough, including waste	ditto	0	1	0
Ditto labour and nails	ditto	0	1	2
Ditto ditto and screws	ditto	0	1	3
Ditto glue blocking	ditto	0	0	2
Ditto framed or clamped	ditto	0	0	11
Ditto keyed on back	ditto	0	0	6
Ditto dovetailed	ditto	0	0	9
Ditto ditto under 2ft.	ditto	0	0	11
Ditto ditto ditto 1ft.	ditto	0	1	1
Ditto ploughed and tongued	ditto	0	0	1½
Ditto cross-tongued	ditto	0	0	2
Ditto beaded each side	ditto	0	0	1
Ditto if in wide widths	ditto	0	0	2½
Ditto if scraped for polishing, each side	ditto	0	0	2
1in. rough, including waste	ditto	0	1	2
Ditto ditto labour and nails	ditto	8	1	4½
Ditto ditto ditto screws	ditto	0	1	6
Add if wrought one side	ditto	0	0	2
Ditto two sides	ditto	0	0	4
Ditto glued blocked	ditto	0	0	2
Ditto framed or clamped	ditto	0	0	8
Ditto mitre clamped, add to this	ditto	0	0	3
Ditto keyed on back	ditto	0	0	6
Ditto dovetailed	ditto	0	0	10
Ditto ditto under 2ft.	ditto	0	1	0
Ditto ditto under 1ft.	ditto	0	1	2
Ditto ploughed and tongued	ditto	0	0	1½
Ditto ditto and cross-tongued	ditto	0	0	2
Ditto beaded each side	ditto	0	0	1
Ditto if in wide widths	ditto	0	0	2½
Ditto if scraped each side	ditto	0	0	2
1in. rough including waste	ditto	0	1	4
Ditto and labour and nails	ditto	0	1	7
Ditto ditto and screws	ditto	0	1	9
Add if wrought one side	ditto	0	0	2½
Ditto two sides	ditto	0	0	5
Ditto glue blocked	ditto	0	0	2
Ditto framed or clamped	ditto	0	0	8
Ditto if mitre clamped, add	ditto	0	0	3
Ditto keyed on back	ditto	0	0	6
Ditto dovetailed	ditto	0	0	10
Ditto ditto under 2ft.	ditto	0	1	0
Ditto ditto under 1ft.	ditto	0	1	2
Ditto ploughed and tongued	ditto	0	0	1½
Ditto ditto and cross-tongued	ditto	0	0	2
Ditto beaded each side	ditto	0	0	1½
Ditto if in wide widths	ditto	0	0	2½
Ditto if scraped each side	ditto	0	0	2

		£	s.	d.
1in. rough, &c.—				
Ditto framing flaps to counter, hung complete, extra	per foot super.	0	0	9
Tongued heading joints	per foot run	0	0	6
1½ by 3 moulded edging screwed on	ditto	0	0	10
2 by 3 ditto ditto	ditto	0	1	2
1¾in. rough, including waste	per foot super.	0	1	8
Ditto labour and nails	ditto	0	1	11
Ditto ditto and screws	ditto	0	2	0
Add if wrought one side	ditto	0	0	2½
Ditto two sides	ditto	0	0	5
Ditto glue blocked	ditto	0	0	2
Ditto framed or clamped	ditto	0	0	9
Ditto if mitre clamped, add	ditto	0	0	3
Ditto keyed on back	ditto	0	0	6
Ditto dovetailed	ditto	0	0	10
Ditto ditto under 2ft.	ditto	0	1	0
Ditto ditto under 1ft.	ditto	0	1	2
Ditto ploughed and tongued	ditto	0	0	2
Ditto ditto and cross tongued	ditto	0	0	2½
Ditto beaded each side	ditto	0	0	1
Ditto if in wide widths	ditto	0	0	4
Ditto if scraped each side	ditto	0	0	2
Ditto framing flaps to counters, hung complete, extra	ditto	0	0	9
Tongued heading joints	per foot run	0	0	6
1½ by 3 moulded edging screwed on	ditto	0	0	10
2 by 3 ditto ditto	ditto	0	1	2

THE COUNTY COUNCIL AND THE SEWAGE OF LONDON.

HOWEVER "urgent" a road may be between the Strand and Holborn—writes Mr. Edmund Kimber, member of the Plumstead District Board of Works—it is not absolutely necessary, at any rate at present; but that which is immediately and absolutely necessary is the purification of the Thames. Though in 1855 the late board were ordered by law to get the sewage out of the Thames, they never did so. Their sewers were a mere stopgap and pretence, and to-day it is foul'er than ever. At any moment the council can be criminally prosecuted for the frightful nuisance they create at Barking and Crossness. Their precipitation business there is folly itself. They carry sludge out to sea at great expense, when they might put it on land close by and raise it and increase its value tenfold, and they propose to spend £8,000,000 only to increase this gigantic evil lower down the river. Never before was there such fatuity and such gross ignorance of the first principles of sanitary science. They ignore the Royal Commission of 1884, and though the late board were condemned by Lord Herschell's committee, they yet follow in its wake.

It matters not that the Houses of Parliament are built on the banks; 34 storm overflows now carry sewage beneath the nostrils of the members and breed microbes *ad nauseam* within their walls. Lord Palmerston in days gone by waxed eloquent over Thames filth, but then it was nothing in comparison with the present open and navigable sewer between Greenwich and Gravesend, where the ordure of 5,000,000 of human beings is daily deposited. Never before in the world's history was there such a gross violation of all laws, both human and divine. That the first municipality in the world should be guilty of a foul and beastly act on an enormous scale, for which common sailor boys and watermen and lightermen are fined every day, is past man's understanding. It only shows that you have only to make ignorance colossal to make it venerable.

Between the Isle of Dogs and Purfleet there are no less than 5,920 acres of unprofitable marsh land, which, with the precipitated sewage sediment, could be easily raised on the average 21ft. high. This would take 600,000 tons annually for 445 years, but at the present rate of the increase of London 100 years would see it covered. But beyond Purfleet there are many more thousands of acres where valueless land could be made extremely valuable — land which for agricultural and horticultural purposes would never require any manure, which would form parks and gardens for the people without end, which, while providing a solid embankment for the river, would create a splendid carriage-way for commerce and business along its banks, and make building plots on the land and railway side which would cover all the cost. Never was there such a magnificent opening as the marshes now present to a bewildered and forlorn and sewage-laden Council. They make a frightful loss where they might and could and ought to make a fruitful profit. It requires no more legislation. The law as it stands fully authorises, and, indeed, enforces, all that is required. The Council are distracted with multifarious duties of secondary necessity and importance; but they have forgotten that the health and cleanliness of London is their first, and that everything must give way before an evil which saps the vitality of Government working in £100,000 a year, and the numerous trac the river by another £200,000 a year- which converts the Thames into a hu and makes it the curse and reproach of th live on its shores.

No wonder that the Peninsular and Company, the South-Eastern Railway, t Committee of the docks, all the local authorities, and the London Chamber merce are now joining in a strong remo to the Government and the Council u unparalleled and unprecedented nuisance

ROYAL VISIT TO LUGWARD WORKS, WITHINGTON.

ON Wednesday week Messrs. William and Son, the well-known Ecclesiast Art Tile Manufacturers, were honoured visit from H.R.H the Princess Mary A Duchess of Teck, H.R.H. the Princess Mary of Teck, and H.S.H. the Duke of T

The royal visitors were accompanied Michael Biddulph, M.P., Lady Elizabe dulph, and a distinguished party, numbe all fourteen, who were paying a visit Lady Emily Foley. The party were co in her ladyship's carriage, and a drag dr four splendid horses, driven by the own Booker. The Duke and Duchess and par conducted by Mr. Godwin and the manag the works, and the different processes manufacture of encaustic and other tile fully shown and explained, the royal appearing to be much interested and with what they saw. The manufacture inlaid or encaustic tiles was watched very and was a source of much interest, so that the Duke, Duchess, and the Princess inscribed their names on the backs of the tiles they had watched being made, an will in due course be forwarded t Highnesses. Messrs. Godwin and Son's chimney pieces, with tile interiors, we much admired, several sets eliciting praise. The royal party also ma much interest in the copies of the English ecclesiastical tiles, the Duke esp desiring to take with him some spe similar to those he had seen in the Malvern. The Duchess and the Princes also desired some of the tiles which th seen and admired to take away with th souvenirs of their visit—a request which w readily granted.

On the completion of the visit, which nearly two hours, the Royal party signe names in the visitors' book, and expressed Godwin the great pleasure the visit ha them. Shaking hands with Mr. Godwi with Mr. Pickerill, they left for Stoke amid the cheers of the workpeople.

UNIVERSITY COLLEGE, LONI SESSION 1891-92.

FACULTY OF ARTS AND LAWS.—APPLIED Lecturer, HUGH STANNUS, F.R.I.B.

TWO courses, each consisting of ten l will be given in the Slade Libr Tuesdays and Thursdays, from 5 to 6 p.m

A. ORNAMENT AND ITS APPLICATIO Elements, (*b*) Principles, (*c*) Application. will extend from the 13th of October to t of November, 1891, both inclusive. *generally* useful to artists, it will have reference to the needs of architectural stud

B. DECORATION.—(*a*) Subdivision of pla face on walls, &c., (*b*) subdivision of surface on cupola, &c., (*c*) colour trea (*d*) storiation, or the application of figure su This will extend from the 17th of Nove the 17th of December, 1891, both inc Though generally useful to architects, specially intended for artists. The lectu attend fifteen minutes before each lect supervise notes and advise. Fees: For A £1 1s.; for A and B, £1 11s. 6d.

CHIMNEY COPINGS.

THE protection of chimney stacks again weather is very necessary. In e situations a brick chimney-stack soon signs of decay; the weather destroys the joints, which become disintegrated, and cr leaving a serrated edge of brickwork.

ng of brick chimneys is particularly liable to percolation of rain, and speedily destroyed. of the best inventions to meet the last-tioned evil is the use of terracotta cappings, ch protect the brickwork from the weather. Chicago firm is now manufacturing salt-ed terracotta cappings to suit various forms himney-tops. These resemble copings made ow to fit over the upper course of brickwork. ner-piece copings are made for the angles, the external mitre cast in one piece, and joints are of socket construction, a flange of piece projecting over the joint of the adjoin-piece, by which means the joints are covered hat no rain can pass through them. The sec-of these copings consists of a level top, the le of which is in a line with the inside of k flue, then a bold splay, and at the bottom a ical face with inner flange, which latter rests he brick course. This chimney coping will a solid and desirable finish, and as it can be ilded to any section, it may be made to me an ornamental appearance.

BOOKS RECEIVED.

rinciples and Practice of Plumbing, by S. VENS HELLYER, with illustrations (London: rge Bell and Sons, York-street, Covent-den.) This is one of the useful series of "echnological Handbooks" issued by George l and Sons, and edited by Sir H. Trueman od, secretary of the Society of Arts. Mr. llyer is an authority on the subject of plumb-, and his former treatises are known to many ur readers for their practical value. In this e handbook the student of the art and the lligent young plumber will find a useful mmary of every branch of the trade. The s and manufacture of lead pipes and castings, s of lead sheets, the tinning of metals, mbers' solder, lead burning and laying, joint ing, and other operations are treated in some il. The chapters on "lead laying" are full, make a very useful section of the work. v architectural students and plumbing rentices know much about the technical rations necessary in laying flats and ters, valleys, hips and ridges, dormer eks, flashings, &c. The points to be attended n making lead coverings to stone cornices, in ossing-up" roof cesspools, angle-soldering, in ming "drips" on flats or gutters, in setting-the rolls on flats, laying gutters, in executing s and ridges and wood and seam rolls, flash-s, "secret" gutters, &c., are noticed and strated by diagrams. These processes are merely defined, but the manner the lead is out, cut, and manipulated for these various poses is practically explained. The general initive and descriptive mode of writing on se subjects are useful to general readers; but young plumber and the student of archi-ture or building wants to know the *modus randi* involved in actually laying and dressing sheets over domes and ogee roofs, and what ths of "lay-downs" and "stand-ups" of there should be on "step-flashing." Many ails are dealt with not found in other rks on plumbing we have seen. The prac-of "joint-making" is well illustrated, elbow-joints and pipe-bending. Non-ansing and self-cleansing traps come in for share of notice, and the good and bad traps illustrated. The principles of trap construc-n are clearly laid down, and the author fully plains and illustrates the loss of "water seal" raps. The concluding chapters give a fair *umé* of the principles of soil-pipe disconnection ventilation, the methods of laying house-ins, the varieties of closet apparatus, baths lavatories, disconnecting and ventilating ps. As a manual of plumbing practice in its ious branches, Mr. Hellyer's little book will a useful addition to the shelves of the archi-t's technical library, and ought to take a place technological instruction in our science ools.

The subject of "back-to-back" houses was dis-sed at the annual provincial meeting of the tional Society of Medical Officers of Health, at eds, on Saturday. Such buildings, so usual in North of England, were strongly condemned as ntially insanitary and prejudicial to the health he occupants, and it was urged that measures uld be taken to obtain their conversion into hrough" houses, and to prevent the erection of ellings of this description in future.

Building Intelligence.

ABERDEEN.—The town council unanimously adopted on Monday the scheme for the extension of Marischal College buildings. The estimated cost of the improvements is £60,000. The plan shows an extension of the college by building an addition to the north and south wings, and a new building to front Broad-street. The front building will have an archway in the centre 40ft. wide. The matter was remitted back to the improvement committee in order that they may arrange the details of the scheme.

ABERGAVENNY.—The additions to the joint counties' asylum at Abergavenny have recently been completed and occupied. The extension provides infirmary wards (for males) on the ground and first floors, which will give accommodation for 54 patients, and also a lavatory block, ten single wards, and the usual attendants' rooms. The new work harmonises with the adjoining building, the walls being built of hammer-dressed Gilwern stone, with Box stone dressings. Considerable difficulty was experienced with portions of the foundations, on account of the presence of springs in the adjoining rising ground. To master this obstacle a well was sunk, with land pipes laid in various directions, which intercepted the water. This was turned to practical account by being conducted into a tank, holding 60,000 gallons, erected some little distance from and below the level of the new block, which is three stories in height. The work has been carried out by Mr. John Linton, contractor, of Newport, under the supervision of Mr. Alfred Swash, M.S.A., of Newport and Abergavenny, with Mr. William Davis as clerk of works. The cost was £3,500.

BARNSLEY.—A school to accommodate 300 boys is in course of erection at Hoyland Common, near Barnsley, for the Hoyland Nether School Board, from designs (which were selected in open competition) of Mr. Fredk. W. Dixon, architect, of Oldham. The plan provides a large school-room, divisible by revolving shutters into three class-rooms, each for 60 scholars, and two other class-rooms for 60 each. Cloak-room and lavatories are also provided. A covered play-shed, 50ft. by 24ft., is built at the rear of main building. The school is faced externally with pitch-faced parpoints from Brighthouse, with dressings of local stone, and roofed with Vellenheli slates. A salt-glazed brick dado runs round all inside walls, which are finished above with plaster. The whole of the joiners' work is of pitch-pine, the roof principles of Quebec pine, and the flooring of cloak-room and corridors will be of concrete. The heating will be by low-pressure hot-water. The contracts, including heating, lighting, ventilating, forming playground boundary walls, amount to £2,460 11s. 8d., and are being carried out by local tradesmen under the architect's supervision.

DRUMCATTON, DUNDALK.—The R.C. church at Drumcatton, near Inniskeen, has just been restored and remodelled. The church was built a century since. In the west gable is now a fresh entrance with Gothic windows above. All the windows have been altered, the old frames being replaced with new ones. The walls have been cleaned down and plastered in cement, heavy mouldings being placed over all door and window openings, and the entire marked in imitation of stonework. The galleries were altered so as to give more accommodation. A stained-glass window, measuring 14ft. by 9ft. 6in., has been placed in the east gable, and immediately over the principal altar. Three new altars painted in light colours and gold have been erected. The sacrarium floor is laid with Minton tiles. A communion rail, in polished pitch-pine, with lattice-work relieved in gold, has been added, and a sacristy has been built. The new woodwork has been stained and varnished, and seats are provided for every part of the church. A new rubble wall has been built, and a considerable portion of new ground added to the cemetery. The work has been carried out by Mr. Thomas Clarke, builder, of Dundalk, from designs by, and under the superintendence of, Mr. James Gaskin, architect, Dundalk.

FENTON, STAFFS.—To celebrate the jubilee of the parish church at Fenton, it was decided in 1889 to rebuild the structure. The plans and designs for the new church were prepared by Mr. Charles Lynam, of Stoke-on-Trent, diocesan surveyor. The work has been carried out, and the new church consists of a nave and six bays, with clerestory and aisles, and north and south porches; a chancel with a chapel on the south side and a clergy vestry on the north; also a north transept, containing a choir vestry and an organ-chamber. A tower is designed for the west end of the nave, and the foundations for it have been put in, but this feature has not yet been erected. The church will accommodate about 1,000 worshippers. The walls throughout are of brickwork, with facings of the same material, except that the interior of the chancel is of ashlar stone. All the dressings are of Hollington or Wall Grange stone. The style of the church is English Decorated, and was dictated by the requirement of the re-use of prominent features from the former church. The cost of the building, exclusive of the tower, will exceed £6,000. Messrs. H. and R. Inskip, of Longton, were the contractors. The consecration of the new church took place on Saturday afternoon.

GLENALMOND COLLEGE, PERTHSHIRE.—The architect of the new wing to this institution, the memorial stone of which was laid by Mr. Gladstone last week, is Mr. George Henderson, of Edinburgh, whose father, the late Mr. John Henderson, designed the existing college. The buildings are in the form of a quadrangle, with the main front to the west, and extending on each side of the square about 275ft. Freestone of a brownish tint, from a local quarry, was used in the building, and after some forty or fifty years' exposure it has now all the appearance of age. The style of architecture adopted is that of collegiate buildings of the 15th and 16th centuries. In the centre of the western wing rises to a height of about 90ft. a massive square tower, with octagonal staircase turret. Underneath is a large archway leading to the quadrangle. The south side of the quadrangle just commenced will only consist of a cloister, giving access to the chapel. The new wing, connecting the hall and chapel, completes the eastern side of the quadrangle, forming a continuous elevation of about 150ft., and contains classrooms on the ground floor, with dormitories on the two upper floors.

LEEDS.—The foundation-stone of St. Aidan's Church, Roundhay-road, Leeds, which is being erected as a memorial to the late Dr. Woodford, Bishop of Ely, a former vicar of Leeds, was laid on Saturday by the Bishop of Ely (Lord Alwyne Compton). The church, which will be of the Basilican type, will be constructed from plans prepared by Messrs. Johnson and Crawford-Hick, architects, Newcastle-on-Tyne. It will be built of red brick with stone dressings. The nave will be 152ft. by 40ft., with the aisles 11ft. in width. The tower will be in the north-west corner, and the west end will be terminated by an apse, which will be used as a baptistery. The east end will also have an apse, with vestries on the north side, and an organ chamber and song gallery above the two easternmost arches on the north side. On the south side a chapel will be provided, so arranged that it can be used with the remainder of the church when the full space is required. Accommodation will be provided for 1,000 persons. The estimated cost is £10,000.—The improvements about to be undertaken in suburban Leeds by the North-Eastern Railway Company will necessitate the pulling down of a large number of cottages at present in the occupation of the working classes. According to the provisions of a recent Act of Parliament, corporations or companies taking such properties by compulsion cannot demolish them until other houses have been built in their place. The plans for these new houses, besides having to be approved by the local authority, have to be passed by a Government department after a public meeting of inquiry held by an inspector from the Local Government Board. The North-Eastern Railway Company propose to build in the neighbourhood of Pontefract-lane, on the west side of Clark-lane, about 170 houses, in place of those which it is proposed to pull down. From experience of the Local Government Board, the company are aware that they will not be allowed to erect back-to-back houses, and therefore it is intended to build what will be model working men's through houses, each having a kitchen, scullery, a separate back yard, and three bedrooms. After their completion, the company will be obliged to keep the houses in its hands for twenty-five years.

LIVERPOOL.—On Saturday there was opened a

building in the city specially constructed and furnished for providing technical instruction to evening students. From front to back the length is 121ft. and 21ft. wide. There are four stories in height to Islington, and two stories high at the back, fronting to Islington-place. The front elevation is Classic in treatment. The electrical laboratory is 67ft. by 18ft., accommodation being provided for about 30 students doing practical work. In the lecture-room, devoted to brick-work and masonry, at the rear, which is 38ft. by 19ft., there are provided benches specially made, tools, and materials for modelling. The carpentry room, fronting to Islington (31ft. by 21ft.), will be under the direction of Mr. F. O. Cresswell. The modelling-room will be under the direction of Mr. J. Hargreaves Bond. The plumbers' workshop in the basement is 23ft. by 20ft., and approaching from the main stair. The general contractors were Messrs. J. Henshaw and Sons, of Chatham-street, who have carried out this work under the direction of the architect, Mr. J. Francis Doyle, Harrington-street, Liverpool.

Morton, Gainsborough.—At a cost of between £9,000 and £10,000 a new church has just been completed at Morton, Gainsborough, the consecration of which, by the Bishop of Lincoln, took place on Saturday. The old parish church of St. Paul, though only built in 1845, with nominal accommodation for 307 worshippers, was inadequate for the increased congregations, and Sir H. B. Bacon offered, if the parish would raise £850, to bear the entire remainder of the cost of rebuilding the church. The old church has been pulled down, and with the exception of the tower, which was left standing, an entirely new edifice has been erected on its site. Built of Ancaster stone with a slated roof, it consists of the old tower, chancel, side chapel, transepts and nave, with aisles. The architects were Messrs. Somers Clarke and Micklethwaite, of Deans-gate, Westminster; and the contractor, Mr. Halliday, of Stamford.

Southwark. — On Saturday afternoon the foundation-stone of a new church in Redcross-street, Borough, was solemnly laid by the Bishop of Southwark. The church will be 130ft. by 42ft. internally. There are no aisles, but a passage-way through the buttresses will serve for processions, and give access to the seats. The sanctuary will be raised several steps above the floor and be surrounded by a low parapet wall. It will be terminated by a semicircular apse, in the chord of which will stand the high altar of plain stone under a baldacchino of simple character. The entrance will be through a deep porch, giving access both to the church and the baptistery. The latter will be lower than the general floor-level, and reached by descending several steps, in accordance with the Roman custom. The church will be built entirely of brick, and will be of substantial construction. It will be of an extremely simple and severe style of Romanesque. There will be accommodation for 700 persons, and the cost, including a large presbytery and sacristies, will be about £7,000, £1,000 of which has had to be spent in foundations, owing to the nature of the site. The architect is Mr. F. A. Walters, F.S.A., of Westminster.

Swansea.—The town council, at a special meeting held on Thursday in last week, decided, by 18 votes to 14, to expend a sum not exceeding £20,000 in rebuilding and improving the market in Oxford-street, and ordered the architects of the plan selected in competition (Messrs. J. Buckley Wilson and Glendinning Moxham, of Swansea) and the borough surveyor to modify the designs so as to come within that limit. The town clerk was further instructed to apply to the Local Government Board for sanction to borrow the money necessary to carry out the work. The estimate of the successful architects for the entire scheme, which was illustrated by a double-page plan and perspective in the Building News for Nov. 8, 1889, was £27,000. The reconstructed market will have frontages to Oxford-street and Union-street, which are to be built of red Avon bricks with Bath stone dressings. The principal entrance will be opposite Portland-street; there are two minor entrances in Oxford-street and two in Union-street. The whole of the area of the present site is to be covered, and by economising space the accommodation will be increased by one-ninth. The architects strove to give the greatest accommodation without adopting galleries, and have designed one main, imposing avenue. There are to be 80 butchers' stalls, a wholesale meat market, a fish market, three rooms for officers, weighing, parcels, refreshment, and retiring rooms.

COMPETITIONS.

Llangefni Drainage and Water Supply.—A few months ago the Llangefni (Anglesey) Local Board offered two premiums of £20 each for the best schemes of drainage and water supply for the town, with the result that six engineers sent in schemes. The board have decided in favour of the schemes prepared by Mr. C. H. Beloe, of Liverpool, who will, therefore, be awarded the premiums subject to the approval of his schemes by the Local Government Board. The board also decided to employ him as their engineer if his schemes be adopted.

Port Talbot Schools.—The competition for these Welsh intermediate and technical schools has been settled, we hear, in favour of Mr. T. P. Martin, of Swansea, whose design has been awarded the first premium. The second prize is taken by Mr. R. Williams, of London. No schools of this class have yet been erected.

Stock Prize.—The Council of the Society of Arts offer, under the terms of the Stock Trust, a gold medal, or a prize of £20, for competition amongst the students of the Schools of Art of the United Kingdom, at the Annual National Competition held in 1892. The prize is offered for the best original design for architectural decoration, by means of painting, stucco, carving, mosaic, or any other method, such as that for the side of a room or hall, a ceiling, or the apse or side of the chancel of a church. The design must be on imperial sheets, and must be accompanied by drawings of details on separate imperial sheets. Mere patterns or pieces of painting and modelling, without the mouldings or borders necessary to make up a complete decorative scheme, will not be taken into consideration. The work is to be that of the previous school year. The designs are to be submitted in the usual manner to the examiners, at the Annual Competition (April, 1892) of the Department of Science and Art. Competing designs must be marked, "In competition for the Stock Prize," in addition to being labelled and staged according to the regulations of the Department of Science and Art.

ARCHITECTURAL & ARCHÆOLOGICAL SOCIETIES.

The Glasgow Institute of Measurers.—The eleventh annual meeting of this institute was held in the Christian Institute on Monday afternoon. Mr. Robert Scott, I.M., the president, occupied the chair. There was a good attendance of members. It was reported that there are now forty-four members upon the roll. The funds of the institute amount to £173 15s. 9d. Reference was made to the rules for the measurement of brick, slater, and plumber works, and it was intimated that these have been advanced a stage, but are still under the consideration of the joint committee. The office bearers for the ensuing year are:—President, Robert Scott, 115, Wellington-street; vice-president, Wm. Howatt, 146, Buchanan-street; secretary and treasurer, Colin Young, 113w, Regent-street; auditors of professional accounts, David Robertson and James D. Herbertson. Other members of council are:—James Howatt, John Dansken, Alexander Knox, John H. Ramsay, Robert Reid, John Morrison, and John Muirhead, &c.

The "Special Shipping Issue" of the *Cabinet Maker and Art Furnisher* contains a portrait of Mr. A. Ritchie, of Steven Bros. and Co., of Upper Thames-street, and some illustrations of the manufactures of that noted firm. We also gave Mr. Ritchie's portrait in our last "New Year's Number."

The completion of St. Catherine's Church, Canton, Cardiff (including chancel and choir, south chancel aisle, organ chamber, and vestries), is about to be commenced. Plans have been approved of, and tenders received, so that this long-looked-for improvement is about to become a reality. The architects are Messrs. Kempson and Fowler, Llandaff.

Mr. John Hutchison, R.S.A., Edinburgh, has just designed and executed in Sicilian marble a baptismal font for St. Salvator's, or the College Kirk of St. Andrew's.

TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opin our correspondents. All communications sho drawn up as briefly as possible, as there are claimants upon the space allotted to correspondei

It is particularly requested that all drawings a communications respecting illustrations or literary should be addressed to the EDITOR of the Bu News, 332, Strand, W.C., and not to members staff by name. Delay is not unfrequently oth caused. All drawings and other communicatio sent at contributors' risks, and the Editor wi undertake to pay for, or be liable for, unsought con tions.

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Bound volumes should be ordered early (price T Shillings each), as only a limited number are up. A few bound volumes of Vols. XL., XLI., XL XLIX., L., LI., LII., LIV., LVIII., LIX., and may still be had, price Twelve Shillings; all the bound volumes are out of print. Most of the back bers of former volumes are, however, to be had si Subscribers requiring any back numbers to com volume just ended should order at once, as ma them soon run out of print.

Received.—H. and J. M., Ltd.—H. S.—J. D. and S N. J.—C. G. R.—B. L. Co.—B. N.—A. and Co.—E and Co.—H Bros.—J. P.—N. E. of W.—R. and S H. J. T.—W. E.—B. of L.—E. and Co.—O. B. S W. and J. K. H.—W. H. and Co.—C. W. B.—J. C and Son.—N. E. L. Co.—M. C.—C. S. P.—J. K. C

John Jas. Downes. (The Courts have decided tha architect has no right to the drawings. The point never been tested, as it should be, by an appeal t highest Court, but such is the law so far. You search our back vols. yourself for the cases.)—M (We know nothing about the conditions. You get information by addressing the Secretary Conduit-street, W.)

Correspondence.

THE ARCHITECT OF THE FUTUR

To the Editor of the Building News.

Sir,—After perusing the "Brown Book the A.A., and thinking of the happy time w all architects shall be well trained, examined, registered, I receive a fearful shock by receipt of the inclosed.

Messrs. * * * * * * and Co., Auctioneers, Surve and Estate Agents, Architects and Quantity Surve Mortgage Negotiators, Builders, Decorators, and San Engineers. Furniture Removed and Warehoused. mates Free.

I have heard a great deal of the furniture s in North-West London, but never expected not only can you obtain designs of cathed town-halls, and mansions, but even bill quantities. It is said that one of the part wishes to become a Fellow of the Survey Institution, and I commend the above advert ment to the notice of the Council of that bod I am, &c. Surveyo

THE BLACKPOOL TOWER.

Sir,—We might forgive a little vulgarit the Notes of your Wayside correspondent, when his pleasantries cause injury to the sha holders in a public company, it is time for statements to be corrected.

] the first place the Justices have not refused
l nse to the buildings. There are at present
w icenses attached to the site, and these will
e. full operation until next September, and
e hairman of the Justices made a special
o st to the Press that they should not assume
n the license had been refused, for when the
r oters came before them with the buildings
p leted the application should receive their
r favourable consideration.
nder these circumstances our directors on
ay night passed a resolution to proceed with
rection of the tower immediately, and the
acts will be, we expect, placed within a
ight, and the works proceeded with at once.
e are sure you will excuse this contradiction,
when a statement is made in a serious pro-
ional journal like your own, it is difficult for
le to imagine you are purpitrating a joke.—
MAXWELL AND TUKE.
are, &c.,
, Princess-street, Manchester, Oct. 5.

"Goth" should certainly have been more
ful with his facts. As to the "vulgarity,"
hardly more heinous to "purpitrate" a joke
bad spelling—it is Messrs. Maxwell and
e's own.—ED.]

THE GLENBURN HYDROPATHIC COMPETITION.

IR,—I have seen to-day for the first time the
arks on the Glenburn Competition, in your
ber of the 18th ult., in which reference is
le to a paragraph in a Glasgow evening
er. The statements in this paragraph, so far
hey are intended to refer to me, do not con-
a word of truth. I should feel obliged if
would insert this contradiction.—I am, &c.,
T. L. WATSON.
08, West Regent-street, Glasgow, Oct. 3.

FORMATION OF NEW ROADS.

IR,—You recently reported the decision in the
e of a road at Highbury, when the formation
road at Herne Hill was mentioned, and as
s is a most extraordinary instance of evading
law details may not be without interest to
ir readers. The new road starts from Half
on-lane and runs just sufficiently far to enable
ses to front the land with other houses at the
k.
This short road and the length at an acute
gle to it, nearly parallel to Half Moon-lane, is
ft. wide, but it discharges into a 4ft. footpath
dened to 22ft., so that this street is not 40ft.
roughout its width, nor can it be, as the
joining land is let on lease for some years, and
e freehold belongs to Dulwich College.
A more remarkable case of road formation can-
t be found in the county of London.—I am,
,
OBSERVER.

CHIPS.

The temperance-hall at Walsall was reopened on
nday night after alterations and decorations
rried out by Mr. Roden, of Wednesbury.

Mr. George Wallis, who for twenty-eight years
s been Senior Keeper of the South Kensington
useum, and for more than forty years connected
th the promotion of art education in this country,
s resigned his appointment. Mr. Wallis delivered
s first lecture advocating State assistance for Art
early as 1839.

The Archbishop of York will reopen Selby Abbey
urch, after restoration from Mr. J. Oldrid Scott's
ans, on Tuesday next.

On Saturday the members of the Glasgow Archi-
ctural Association visited the Coats Memorial
urch at Paisley, upwards of thirty attending.
r. Hippolyte J. Blanc, of Edinburgh, the archi-
ct, conducted the party over the church, which is
t yet finished, and described the special features
d peculiarities of construction and arrangement.

The Newton Heath Branch Library was formally
ened last week by the Mayor of Manchester
fr. Alderman Mark). The rooms occupied by the
rary are in the building erected as offices by the
d local board (now merged in the Manchester Cor-
ration), a portion of which, used as a public bath,
s already been opened.

The new Wesleyan Centenary chapel at Wit-
ring, South Lincolnshire, was recently opened.
he building is fitted up with pitchpine seats,
d will accommodate 100 worshippers. Mr.
. Scholes (Stamford) and Mr. W. Hilliam (Stam-
rd) were the contractors, the former being
sponsible for the woodwork and the latter for the
asonry.

Intercommunication.

QUESTIONS.

[10640.]—**Sea Sand in Mortar.**—There seems to be a general idea that when sea sand is used in mortar (or plaster) it has a tendency to keep the walls damp, and even draw water. Is this so? and are there any other bad effects to be traced to its use?—WAVE.

[10641.]—**Floors.**—At p. 482 of the "B. N.," article "Prices," subject, "Joiners' Floors," the floors are all described as "laid folding," except those mentioned "laid diagonally." Even the floors, "grooved and tongued," "rebated," and "loose tongue," of pitchpine and wainscot oak, are described as laid folding. As only the very commonest broken joint floors are laid folding, surely some mistake has been made.—G. C. B.

[10642.]—**Strong Room.**—I shall be glad if some kind reader will give me particulars concerning the best means of ventilating and lighting strong rooms. Also names of makers of fireproof doors and ventilating gates, and best mode of fixing same? Similar questions to above were asked in your issue of September 2nd, 1887; but I can find only one reply, which gives very little information. Perhaps "Clerk of Works," who replied on that occasion, will kindly reply again, giving a few more details?—F.

[10643.]—**Roman Mortar.**—Which of our limes in present common use, if either, resembles those used by the Romans in England? Is it true, as I have heard, that the Romans slaked down their lime and sand, and kept it in pits for a very long time, over a year or more, before beating it up and using it as mortar? Would the same system applied to our poor limes of the type of Dorking and Halling lime result in a better mortar than would the present system of slaking it on a bed of sand and covering it up for 24 hours, and then using it within eight or ten days?—W.

[10644.]—**Joists.**—On looking at the grain of the end


FIG. 1.


FIG 2.


FIG. 3.

of a joist, which out of the three sketches would be considered to be the best for strength and durability, and why?—SAP.

[10645.]—**Building Materials.**—Can some reader kindly recommend me a good book on building materials, more particularly on stone and timber? Rivington's is too expensive. Also some book treating of the manufacture, trade names, qualities, &c., of iron and steel, and suitable for the requirements of students entering for the Honours Building Construction Exam. (Science and Art Department, South Kensington)?—ENQUIRER.

REPLIES.

[10632.]—**Lift and Force Pump.**—"Seleiba" does not give the depth of well, nor height of tank; but, ordinarily the internal diameters of the suction pipe and rising main should be half of that of the working barrel.—G. C. B.

[10634.]—**Brick as a Building Material.**—In a stone-built wall there are less joints than in a brick wall of the same area; consequently, there is less likelihood of the admission of cold and damp through defective joints in stonework than in brickwork. Some building stones induce dampness by possessing the power of attracting and condensing on their surfaces atmospheric moisture I have seen an instance of this in which the walls of a mansion had to be cased with studding to receive the plastering. The insanitary condition of brickwork is caused by the omission of a damp-proof course, bad material, and bad workmanship. Build your house with thoroughly hard, well-burnt bricks of the Coal-measures (of which there are an abundance about Huddersfield), grouting in each course with semi-liquid mortar, and you will have nothing to fear. The walls should not be less than a brick and a half, and the outside joints should be struck—course by course—during erection.—BRICKWORK.

At the meeting of the Quarterly Court of the Worshipful Company of Plumbers, held at the Guildhall, London, on Friday, Mr. W. H. Bishop, re-elected Master, Mr. Charles Hudson, re-elected Warden, and Sir Philip Magnus, elected Renter Warden, were severally sworn in to their respective offices for the ensuing year.

On Tuesday week the new church of St. Mark, Claughton, was dedicated. The church consists of a nave with north and south aisles, morning chapel on south, and a parish room and vestries on the north side. The north aisle terminates in an octagonal baptistery, and a detached tower and spire (the latter rising to a height of 170ft.) is eventually to be erected at the south aisle. The style is Late Pointed, and the external walls are built with white Storeton, relieved by dressings of red Runcorn stone. The church, which will seat 700 persons, has been erected by Mr. W. H. Forde, Claughton-road, and was carried out under the superintendence of the architect, Mr. C. W. Harvey, in conjunction with Messrs. Pennington and Bridger, of Lord-street, Liverpool. Mr. John Todd officiated as clerk of the works. The cost is £8,000.

Legal.

TENANCY AGREEMENTS.

WHAT are called "Tenancy Agreements," but are really leases for one or three years, or from year to year, are very commonly drawn up nowadays. Printed forms are frequently used, and parties often sign these agreements without clearly understanding their effect. Sometimes a tenant taking a house for a year certain, signs a document that appears to carry out his intention, and states that the premises are let to him from a date named "for one year certain"; but, upon reading a little further, it will be found to say "and so on from year to year." Now, those words create a yearly tenancy beginning directly after the first year certain expires. The effect is, of course, to fix the tenant for at least two years—i.e., the one year certain to start with, and then the yearly tenacy, which means another year certain, because it cannot be determined except by giving six months' notice to quit, expiring at the same quarter as that from which it began. This way of drafting agreements from one year is very common, and it is a trick by which many people have been deceived. Another point is that something of the same sort is often done in agreements for three years, by providing that after the expiration of the three years, the tenant shall become a tenant from year to year, unless he has given the landlord three months' notice of his intention to quit on the expiry of the term of three years. This looks fair enough, but tenants often overlook the clause, or they still more often forget to give the three months' notice, and then find themselves, to their surprise, fixed for at least one year more as a yearly tenant, subject, moreover, in all respects, to the same provisions of the agreement as during the three years that have expired. Then, again, it is frequently forgotten that an agreement for more than three years from its date must be under seal to be valid as a lease. Another point in these agreements is the stamp. If a document is called an agreement, popular knowledge thinks it only requires a sixpenny stamp; but of course tenancy agreements, though but for one year, are leases in law, and must be stamped as such, *ad valorem*, upon the rent payable, according to the scale of duties. FRED WETHERFIELD, Solicitor.
1, Gresham Buildings, Guildhall, E.C.

NOTE.—All questions for reply in this column must be headed "BUILDING NEWS," and must reach my offices, as above, by Tuesday morning each week.

CONSTANT READER.—ROAD—TITHE.—Where land is taken for public purposes, the tithe-rent charge should be, and usually is, redeemed. Probably that has been done in the present case. At all events, the local authorities would not take over a road liable to any charges of this kind.

SUBSCRIBER.—DRAWINGS.—LOSS.—LIABILITY.—If the drawings were sent by post, they can be returned in the same way, and the person so returning them would not be liable for damage for their loss if he proved posting them properly addressed. In the absence of a request to register and payment of the fee, I do not think there would be any legal obligation to do so on the party returning them.

ARCHITECT.—INCOME-TAX.—DEDUCTION.—There are no special rules affecting architects in making their returns for Income-tax, and they would come under the same regulations as other professional men. They must pay according to the profits made. As to the other two questions, I shall be pleased to consider them, if you will put more precisely the points you wish me to deal with.

The extensive premises of Guilbrand, Gregersen, and Sons, of Pesth, timber merchants and parquetry manufacturers, were burnt out on Sunday, the total damage being estimated at over £50,000 sterling.

The Manchester, Sheffield, and Lincolnshire Railway Company have decided to make at Grimsby a new dry dock, and to construct new coal jetties for the steam trawling packets. The cost of the dry dock will be about £200,000, and the coal jetties £50,000.

The fragments of a fine marble statue of the best period of Greek art have been found in the Tiber Embankment excavations below Rome. The head is of extraordinary beauty and well preserved. So far as the fragments have been put together, the sculptor Monteverde and the painter Morelli pronounce the statue to be a *chef d'œuvre* of Greek art. It will shortly be exhibited to the public in the new Museum in the Baths of Diocletian, where other important objects lately found in the Embankment works are preserved.

LEGAL INTELLIGENCE.

Damages against a Wakefield Builder.—At the Wakefield County Court on Wednesday week, his Honour Judge Greenhow was engaged for several hours in hearing a case of interest to builders and their workmen. The plaintiff was Henry Dickinson, a bricklayer, living in Gosnay-terrace, Eastmoor, and he sued Mr. John Bagnall, builder and contractor, Eastmoor, for £70 damages under the Employers' Liability Act. On the 8th of June the plaintiff was working in defendant's employment repairing a maltkiln in Thornes-lane. Plaintiff fell from a scaffold, in consequence, as alleged, of one of the scaffold poles being defective, and defective to the knowledge of the defendant and his son William, a foreman of the defendant's. In defence it was said that the plaintiff selected the scaffolding poles, and that William Bagnall was only the time-keeper. His Honour gave the plaintiff a verdict for £80 and costs, £40 for wages, and £40 for pain and injury, he having fallen from the scaffolding which gave way and sustained serious injury.

Re George Mower and Son.—The first meeting was held on Sept. 30 before Mr. Hough, Official Receiver. The debtors are builders and contractors, carrying on business in Wells-street, Hackney. Their statement of affairs shows total liabilities £4,291 10s. 10d., of which £3,462 15s. 10d. are unsecured, and assets £1,360 19s. 2d. A proposal for a composition of 7s. 6d. in the pound was submitted, payable by three instalments within six months from the date of the approval of the scheme by the Court; and after discussion, the meeting was adjourned in order that the debtors might obtain a guarantee for the composition.

Peto Brothers v. Apperley.—The initial stage of this important case, brought by a well-known firm of builders against the secretary of the Amalgamated Committee of Carpenters and Joiners, to restrain him from causing bills to be posted outside the Cane Hill Asylum, Coulsdon, calling upon carpenters and joiners to keep away from the works, was disposed of by Mr. Justice Jeune on Friday. His lordship, without calling upon counsel for the defendant, refused the application for an injunction. Without expressing any final opinion on the case, he was quite unable to say, in the absence of any precedent for such an action as this, that there was any such cause of action as would justify him in interfering at the present moment. He had great doubts whether it would make any material difference to Messrs. Peto if between now and the trial of the action the publication of the particular bills was restrained, and he did not think that if such publication was not restrained the defendant's Association would be any nearer to its object. He therefore refused to continue the injunction. Defendant's counsel asked for costs; but Mr. Justice Jeune reserved them to be dealt with at the trial of the action.

CHIPS.

The south side of the parish church of Blewbery has been restored as a memorial to the late vicar. The work has been carried out under the direction of the diocesan architect (Mr. John Oldrid Scott), by Mr. Y. J. Lovell, of Marlow.

A new post office has just been built near Bantry at a cost of £800. The contract for masonry was carried out by Mr. William Murphy, of Bantry, and that for carpentry by Mr. Daniel Donovan, of the same town.

The commission for the statue of Garibaldi, unveiled at Nice on Sunday, was originally given to the late M. Etex, and after that sculptor's death was carried out by M. Deloye. The figure is of marble.

The ornithological picture, entitled "A Select Committee," painted by Stacey Marks, R.A., and the bronze statue of "Peace," by Onslow Ford, A.R.A., have been selected for purchase, for the permanent collection, by the Arts Committee, out of the current Autumn Exhibition in the Walker Art Gallery. Both works were prominent features of the recent Academy Exhibition.

Alterations have been made to the Union workhouse, Kensington, embracing the ventilation, the extraction of the vitiated air now being effected by the latest improved form of Messrs. Robert Boyle and Son's patent self-acting air-pump ventilator.

The local board of South Stockton elected on Tuesday Mr. M. Scott, assistant surveyor of West Hartlepool, as town surveyor, in succession to Mr. W. J. Alderson, resigned.

Through their clerk, Mr. H. De La Hooke, the London County Council give notice that, under the provisions of the London Sky Signs Act, they will demolish any sky sign, the "owner" of which has not obtained from the district surveyor a certificate to the effect that it may remain for a period of two years without being likely to cause danger. The latest day for giving notice was Tuesday last.

Our Office Table.

The value of the motto system in competitions in securing a fair field for all comers is curiously illustrated by the result of the Baths competition at Coventry, where it transpires that the assessor recommended a committee to adopt for execution, at an estimated cost of £14,000, a design sent in under motto by an architect's pupil who is still technically an "infant." When the minutes of the Baths Committee came up for confirmation by the City Council of Coventry, the question was raised who was the Mr. Burgess who was to be instructed to prepare the detailed specifications, and what was his age? The explanation given by the committee revealed the fact that Mr. Burgess is a pupil to Messrs. Spalding and Cross. Seeing this competition announced, he inquired if his principals were going in for it. They replied in the negative, when the enterprising youth obtained leave to try his hand, and was allowed the run of the office in the preparation of plans. The assessor and the committee unanimously selected his design as the best, and Messrs. Spalding and Cross handsomely promised, if the committee's recommendations were adopted, to see it properly carried into execution. Several members demurred that it would be imprudent for the corporation to enter into an engagement with a minor, but by a large majority the members supported the committee, and Mr. Burgess was appointed architect at the usual 5 per cent. commission.

The London County Council, at their meeting on Tuesday, rejected three out of five proposals of the Improvement Committee. They included the removal of Bozier's-court, Tottenham-court-road, and of the "island" buildings between Holywell-street and the Strand, and the construction of a new street from Tooley-street to Bermondsey New-road as a southern approach to the Tower Bridge. In the two former cases the Committee recommended that power should be taken to levy a "betterment" rate on the owners whose property would be benefited by these alterations; and this was the point to which the majority of the members of the Council objected. The scheme for the improvement of the northern approach to the Tower Bridge has already been passed. The report of the water-supply committee, of which the main features were given by us last week, was brought up, but the discussion was adjourned.

The Pre-Raphaelite School of Painting was the subject of an interesting address delivered by Mr. William Morris at the Birmingham Art Gallery on Friday night. He pointed out that the pre-Raphaelites had impressed their art upon the present generation of English people, and, to a certain extent, upon the artists of France. The school itself had made its mark on the age. The renowned year of 1848 witnessed the first appearance of the Pre-Raphaelites before the public. Their social and particular doctrine was naturalism, as opposed to the tradition that then dominated the artistic schools of Europe. The Pre-Raphaelites broke with the old and worn-out tradition which had tyrannised over art so long. Most people would have thought the public would have received this attempt with acclamation; but, on the contrary, the paintings were characterised as monstrous, and the artists were received with jeers. John Ruskin, however, became their champion, and eventually they made their way, and achieved success as a school. In addition to the mere presentment of natural facts, the school aimed at a far more important kind of painting—the conscientious presentment of incident. They came to the conclusion that, besides excellent execution, care, and skill bestowed on the painting, it should tell some kind of story.

Alderman Thomas Hill, J.P., a well-known builder at Bradford, died on Friday after a lingering illness. Mr. Hill belonged to one of the old Bradford families, his father being a builder and contractor, to which business the deceased also devoted himself for many years. He entered the Bradford Town Council in 1866 as councillor, and in 1872 he was raised to the aldermanic bench, on which he held a seat until his death. In 1885-6 Alderman Hill was elected Mayor, and served the town in that capacity with dignity and success. A year later he was placed on the commission of the peace for the borough. He carried out the work of restoration of the parish church of Bradford, and presented the pulpit now in use, after constru out of the oak of the old disused pews deceased was in his 67th year, and was unm

The death is announced of Signor V Vela, the distinguished Italian sculpto expired at his native village of Lignoretto, Canton of Ticino, in his 70th year. At of twelve he was employed in a stone quar soon manifested a great aptitude for scu Through the aid of friends he was sent to in 1836, where he was employed in the wo the restoration of the cathedral. He was of the sculptor Cacciatori, and in 1848 part in the sculpture competition at Veni carried off the prize, his subject being relief, "Christ restoring the Daughter of Ja While at Rome modelling his "Spart Vela was recalled to the Ticino, to take the war of the Suderbund. On the conc of the campaign he returned to his studi executed his statue of "Spartacus," a which attracted great attention at the Exhibition of 1855. Signor Vela proce Turin, where he executed several statue cluding those of "Hope" and "Resigna At Bergamos he finished his "Harmo Tears" for the monument to Donizetti. Paris Salon of 1863 he exhibited a gr marble, "France and Italy," which wa sented by the ladies of Milan to the E Eugénie. Many of his other works we exhibited in Paris, where he obtained medal in 1867.

The twelfth examination held und auspices of the Incorporated Associati Municipal and County Engineers was held Town-hall, Manchester, on Friday and day, the 2nd and 3rd of October. The and graphic examination was taken on t day, and the *viva voce* occupied the great of Saturday. The examiners were E. Prit M.Inst.C.E., Past President; Jas. M.Inst.C.E., Past President; A. M. M.Inst.C.E., and C. Jones, A.M.I.C.E. President. The next examination is to b in London in April, 1892.

The American insurance companies issue policies on cattle have been led to t clusion that a distinct increase in the caused by the use of wire fences on farms. number of cattle reported as killed by lig is very large. "Most of the animals," writer in the State of New York, "we wire fences at the time, and it is suppos metal strands act as a conductor of electri a degree sufficient largely to increase the

The foundation stone of a new mission was laid at Plymouth, on Michaelmas Day building will be red brick, with Portland dressings, and will accommodate 200 persons J. D. Bellamy is the architect, and Messrs. Lethbridge and Son are the contractors.

Mr. A. T. Walmesley, engineer to the Harbour Board, together with Mr. Webst Mr. Thorne, architect and contractor respe for the Dover Promenade Pier, and other men, fixed the position on Saturday for th mencement of the work of building the pier, will be carried out 1,000ft. from the centre bay. A pavilion will be erected at the end pier.

An Alpine Club hut is being built on the Peak of Monte Rosa. The hut will be the building in the world, being at an altitude of 15,000ft.

The city council of Newcastle-on-Tyne Wednesday in the council-chamber at the hall, which has been refurnished and reseate outlay of about £1,000. The work has been out under the direction of Mr. W. G. Law engineer.

A church is about to be built for the village of Cudworth, near Barnsley. It wi plain structure, consisting of nave, an aisl chancel, and will seat 250 persons. The est cost is £2,000.

The parish church of St. Anne, Limehou reopened on Wednesday by the Bishop of L The choir has been brought down from th gallery into stalls in a conventional chancel sanctuary walls and ceiling have been gilde illuminated, and new windows have been on both sides to admit more light. The chu also been cleaned and decorated.

The parish church of Falkirk has been r under the direction of Messrs. T. H. and F. of Bradford.

ER SUPPLY AND SANITARY MATTERS.

POOL.—A meeting of the Liverpool Water y Works) Committee was held on Tuesday. ago the committee commissioned Sir Ben- Baker to investigate that part of the r scheme of the Liverpool Corporation relates to the pipe-line crossing of the at Fidler's Ferry, and this report was read day. It dealt with the point as to the t of the works at Fidler's Ferry being suc- y accomplished within a reasonable space of nd replied to the question as to whether this the existing scheme should be persevered rhether some alternative scheme should be d. Sir Benjamin reported as to his examina- the works, and as to his consultation with eacon. Upon certain modifications, upon they were agreed, being carried into effect, of opinion that the scheme can be accom- within reasonable time. The suicide of Mr. ochrane, the contractor for the tunnel, gave an animated discussion at the committee g, and the opinion was freely expressed that ifortunate feature in the Vyrnwy under- had proved such a terrible source of worry xiety as to be a factor in his death. Sir B. s report was, on the recommendation of the ttee, adopted by the Liverpool City Council dnesday.

ISTONE WATERWORKS.—The Penistone Local , Yorkshire, have arranged to supply a large ity of water to several adjoining districts, and it e necessary to put down additional duplicate ing machinery, and otherwise alter and extend works to provide the additional supply, and nt the possibility of a breakdown. The Local have called in Mr. W. H. Radford, C.E., of gham, to report on the present works, and them as to the proposed works.

DRUTH WATER SUPPLY.—The Redruth Local , at their meeting held on the 28th ult., nted Mr. H. Bertram Nichols, C.E., of Bir- am, to prepare a scheme, and to report, with ate of the probable cost, for the water supply druth, and he has been requested to make gements for visiting the locality and meeting ard on as early a date as possible.

YL AND DISTRICT WATER SUPPLY.—At a ng of the delegates of the joint authorities of St. Asaph, and Abergele, at Rhyl, on day, a report by Mr. George F. Deacon, C.E., e water supply to Rhyl and district was read. considerable discussion it was unanimously ed to recommend to the local authorities of Abergele, and St. Asaph, that steps be at aken with the view of Promoting a Bill in ament for the compulsory acquisition of the and district water undertaking for the supply ater for domestic, general, and sanitary oses within the districts of the said authorities.

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e Lady Mayoress, on Saturday, laid the me- l stone of the new church of St. Peter's, lewood, which is to take the place of an iron ing. The new church will be of brick, and l accommodation for 750 worshippers. The cost will be about £6,000. Mr. T. H. Watson architect.

e session for the delivery of the Oxford ersity Extension Lectures opened on Wednes- n last week, September 30th, at the Melcombe School, where the Rev. G. Herbert West, , of Christ Church, Oxford, and Bournemouth, I.B.A., A.M.I.C.E., delivered the second part is course of lectures on the "History and ciples of Architecture."

e parish church of Peterstone, midway between iff and Newport, was reopened on Friday after ration at a cost of £1,800 for the nave, and for the chancel. The nave arcades have been ilt, and a new roof placed over it, while the r has been restored. Messrs. Habershon and ckner, of Newport, were the architects.

n Saturday a mass of bastard rock, which has fered with the development of the workings at l Penrhyn's Carnarvonshire slate quarries, was olished by the agency of some eight tons of ing powder, the weight of rock shattered oximating 80,000 tons. The powder was placed rmetically-sealed chambers, and the explosion successfully carried out by Mr. Young, the ager of the quarries, and Mr. Pritchard, the king manager.

he London School Board have accepted the der of Messrs. Higgs and Hill, South Lambeth- l, amounting to nearly £50,000, for the enlarge- t of the offices on the Embankment; the same are the contractors for the foundations now g put in. The Board have adopted plans of srs. Spalding and Cross, of Queen-street, sub- ed in competition, for a swimming-bath to mmodate 50 boys, to be added to Pocock-street ol, Blackfriars, S.E.

Trade News.

WAGES MOVEMENTS.

BOLTON.—The Bolton plumbers commenced on Monday with their advance of wages from 8d. to 8½d. per hour. The hours remain at 52 in summer and 47 in winter; but the men are to be allowed 3s. per week lodging money when working in the country. On the other hand, the men concede an extra apprentice to each master, each apprentice to be bound before he is 15.

THE CARPENTERS' STRIKE IN LONDON.—The latest development of this movement is that yesterday (Thursday) the plasterers' labourers engaged on the Imperial Institute, for which Messrs. Mowlem are the contractors, dropped work, refusing to work with "blackleg" carpenters. The plasterers followed suit, and the masons' labourers being also struck, the works were temporarily, at least, brought to a standstill. Both the Master Builders' Association and the United Trades Committee still show a determined front: the former assert that they never received, and thus have never refused, a distinct request for arbitration, but add that they adhere to the terms offered in July—9d. per hour for 52 hours in the forty weeks of summer, and 47 hours for the remaining twelve weeks. On the part of the men, it is reported that two more firms—Messrs. Canning and Mullens, of the Elephant and Castle, and Mr. Marks, of Bell-street—have conceded their terms. Besides the levies from branch societies in the trade, a large number of outside contributions have flowed into the coffers of the United Trades Committee during the present week, including £225 from the Provincial Bricklayers' Society, £50 from the Printing Machine Managers, £50 from the Railway Servants' Society, a first instalment of £25 of £100 voted by the Midland Miners' Federation, £20 from the National Flint Glass Workers, £15 from the London Society of Lithographic Printers, £12 from the Second Branch of the Amalgamated Society in New York, £10 from the National Labour Union, and smaller amounts from the Operative Masons, the Saddlers and Harness Makers, the Edinburgh Trades Council, the Amalgamated Bakers, the Spring-Knife Grinders and the Table-Knife Grinders (both of Sheffield), and the Bourse des Travaux, Paris.

EDINBURGH PAINTERS AND TECHNICAL EDUCATION.—A well-attended meeting of the Edinburgh branch of the Painters' Federation was held in the Labour Hall on Friday night, Mr. Reddeck, president, in the chair. At the recent quarterly meeting a technical school for apprentice painters was proposed, but consideration of the matter was adjourned until Friday night, when the scheme and rules in connection with it were approved. It was resolved to submit these to the Masters' Association for approval.

GLASGOW.—The paviors in the employment of Messrs. A. and J. Faill, Glasgow, have struck work for an advance of ½d. per hour, which would increase the rate of wages to 6½d. per hour.

On Saturday the memorial stone of the new Free Church of Glenboig was laid. The building is being erected from plans by Mr. George Arthur, architect, Airdrie, and will accommodate 384 persons. The cost will be about £1,300.

The Library Association of the United Kingdom recently decided to form a collection of library appliances, plans, and bibliographical works, for permanent exhibition in London, and towards that end are now soliciting contributions of specimens of everything connected with books and libraries. All specimens or letters on the subject should be addressed to Mr. James D. Brown, Public Library, Clerkenwell, E.C.

The foundation-stone of a new chancel in All Saints' Church, Carshalton, was laid on Saturday afternoon by the Duchess of Albany. The church at present accommodates 500 persons; but by the proposed enlargement the seating capacity will be doubled. The estimated cost is £10,000. The architect is Sir Arthur Blomfield, A.R.A.

The new council-chamber for the town council of Tunbridge Wells was formally opened on Wednesday week. It has been erected and fitted up from the designs of Mr. William Brentnall, the borough surveyor.

At a meeting of the Oswestry town council, held on Monday, it was decided that the plans for the new municipal building should be intrusted to the borough surveyor to carry them out, under the superintendence of Mr. Thomas M. Lockwood, of Chester.

The restoration of the parish church of Standlake, near Witney, which has been in progress since 1881, at a total cost of £6,000, has just been completed. Mr. Clapton C. Rolfe was the architect, and Messrs. Harry Hems and Sons, of Exeter, have executed all the carvings.

MEETINGS FOR THE ENSUING WEEK.

FRIDAY.—Architectural Association. Address by the President, F. T. Baggallay. 7.30 p.m.

CHIPS.

The foundation-stones of a new church at Round's-green, Langley, near Birmingham, were laid on Monday. The building will accommodate 300 persons, will consist of new chancel, organ-chamber, and vestry, and will cost about £1,600. Messrs. Wood and Kendrick, of West Bromwich, are the architects, and Mr. Willcock, of Wolverhampton, is the builder.

Superintendent Abbott, after an inspection with President Vanhorne of the bridges and superstructures of the Pacific Division of the Canadian Pacific Railway, says that it has been decided to replace the wooden structures by others of steel, iron, or stone. It is estimated that the cost will be two million dollars, but the shortening of the running time between Vancouver and Montreal will repay the cost of the outlay.

After complete renovation of the interior and exterior, with the addition of a chancel, the church of St. Paul's, at East Boldre, or, as it is commonly called, Beaulieu Rails, Hants, was reopened on Thursday in last week. The church was built in 1839. A new chancel has now been added, and the brick floor has been removed to give way to a more suitable wooden one. The sitting arrangements have all been modernised. The old plaster ceiling has been replaced by one of matchboarding. The alterations have been carried out by Mr. Wheeler, builder, of Lymington, according to the plans of Mr. Wheeler, of Southampton.

The forty-fourth session of the Liverpool Architectural Society was opened on Monday evening, when an inaugural address was given by the President, Mr. T. Harnett Harrison, F.R.I.B.A.

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TENDERS.

*** Correspondents would in all cases oblige by giving the addresses of the parties tendering—at any rate, of the accepted tender: it adds to the value of the information.

BWLCH-LLYS CASTLE, RADNORSHIRE.—For restoration, alterations, and additions to house, additional farm buildings and repairs to same, and sewerage work:—
Southern, W. W., Nobold, Shrewsbury (accepted).
(No competition).

CANNING TOWN.—For the erection of Holy Trinity Parish Hall, Canning Town, E. Messrs. J. T. Newman and Jacques, 2, Fen-court, E.C., architects. No quantities :—

Reed, A.	£2,258	0	0
Hosking, G. J.	1,878	0	0
Hearle and Farrow	1,780	0	0
Noakes, J.	1,660	0	0

CARDIFF.—For additions to the Free Library, for the corporation. Mr. E. Seward, R.C.A., architect :—

Davies, D. J., Cardiff	£27,2	0	0
Dunn, C. E., Cardiff	24,902	11	2
Stephen, Baslow, and Co., Bristol	23,599	0	0
Thomas, W., and Co., Cardiff ...	23,516	0	0
Brown and Backhouse, Liverpool	23,330	0	0
Burton and Co., Cardiff	22,678	0	0
Bowess, W., and Co., Hereford...	22,605	10	0
Hopkins J., Cardiff	22,227	18	11
Turner, E., Cardiff...	21,030	0	0

[Consideration of the tenders has been adjourned, as the library committee do not wish to exceed an expenditure of £16,000.]

CLACTON-ON-SEA.—For the erection of a private hotel on the Marine Parade, for Mr. J. Jones, J.P. Mr. W. A. Finch, 76, Victoria Park-road, London, N.E., architect :—

West, E. A.	£4,243	0	0
Dobson, G.	4,180	0	0
Porter, A.	3,867	0	0
Everett and Son	3,769	0	0
Sargeant, W.	3,340	0	0
Grimes, J.	3,330	0	0
De Maid, N., Clacton (accepted)...	3,225	0	0

DEPTFORD, S.E.—For the erection of a school for 803 children, in Grove-street, Deptford, for the London School Board :—

Willmott and Sons...	£19,627	0	0
Downs, W.	18,049	0	0
Killby and Gayford	18,020	0	0
Kirk and Randall	17,897	0	0
Holloway Brothers...	17,808	0	0
Hobbs and Co., Limited	17,540	0	0
Treasure and Son	16,999	0	0
Hart Bros., Great Dover-street*	16,947	0	0

* Accepted.

[(*a*) Cost of school buildings and closets, £11,683; (*b*) tar pavement and covered playgrounds, £1,058; (*c*) boundary walls and gates, £702; (*d*) three teachers' rooms, £306; (*e*) schoolkeeper's house and room under, £1,312; (*f*) glazed bricks, £1,169; (*g*) Extra depth of foundations, £717; total, £16,947. Cost per head of (*a*), £14 10s. 11d.; total cost per head, £21 2s. 1d.]

EDGBASTON.—For the erection of residence, Sandon-road, for Mr. Thos. Burns. Mr. Bradford Tomlinson, Coventry, architect. Quantities by the architect :—

Taylor Bros.	£973	0	0

GREENWICH, S.E.—For the erection in Kemsing-road, Halstow-road, Greenwich, of a school for 895 children, for the London School Board :—

Hobbs and Co., Limited	£18,406	0	0
Lovatt, H.	18,198	0	0
Pattinson, S. and W.	18,030	0	0
Holloway Bros.	17,310	0	0
Treasure and Son	16,753	0	0
Lorden, W. H. and Son* ...	16,440	0	0
Kirk and Randall	16,354	0	0

* Accepted.

[(*a*) Cost of school buildings and closets, £11,949; (*b*) tar pavement and covered playgrounds, £872; (*c*) boundary walls and gates, £910; (*d*) three teachers' rooms, £300; (*e*) schoolkeepers' house and room under, £1,213; (*f*) glazed bricks, £723; (*g*) extra depth of foundations, £473; add for brickwork to be built in cement, £441; total, £16,881. Cost per head of (*a*), £14 16s. 10d.; total cost per head, £20 19s. 4d.]

HACKNEY, N.E.—For structural improvements to the school in Orchard-street, Hackney (erected in the year 1875-6), for the London School Board :—

Garrett and Son	£3,050	0	0
Kick, G. J.	2,731	6	0
Neil, W.	2,672	0	0
McCormick, T., & Sons, Canonbury*	2,549	0	0

* Accepted.

ISLINGTON.—For new public baths and washhouses, for the commissioners of the vestry of Islington. Mr. A. Hassell Tiltman, Torrington-square, W., architect :—
(To be completed in nine months.)

Robson, J. J., Fitzroy-square ...	£36,310	0	0
Nightingale, B. E.	35,468	0	0
Rowe Bros., Camden Town ...	35,320	0	0
Parnall and Sons, Rugby... ...	34 940	0	0
Stephens, Bastow, and Co. ...	34,729	0	0
Brass, W., and Son, Old-street...	33,333	0	0
Perry and Co., Bow	32,943	0	0
Avard, R.	32,690	0	0
Patman and Fotheringham ...	32,663	0	0
Richardson, J. O.	32,622	0	0
Allen J., and Sons, Kilburn ...	31,250	0	0
Killett, A.	31,109	0	0
McFarlane Bros, Islington* ...	30,960	12	5

* Accepted, reduced to £27,476.

The following firms tendered for same job, but to be completed in seven months :—

Robson, J. J.	£39,910	0	0
Parnall and Son	35,940	0	0
Rowe Bros.	35,920	0	0
Brass, W., and Son	35,833	0	0
Avard, R.	35,690	0	0
Richardson, J. O.	33,522	0	0
Killett, A.	33,109	0	0
Allen, J., and Sons	31,250	0	0
McFarlane Bros.*	30,960	12	5

* Accepted, reduced to £27,476.

HAMPSTEAD.—For alterations to the laundry bu Fever Hospital, Hampstead :—

Steed, R., Chiswick	£3,108	1	
Calvan and Co., Commercial-road	3,000		
Godfrey and Son, Commercial-road	2,897		
Aaron and Salter, Roderick-road	2,847	1	
Fowler, H., Hampstead	2,825		
Rowe Bros., Camden Town ...	2,817		
Wall, G. A. and H., Kentish Town (accepted)	2,524		

KENTISH TOWN.—For the enlargement of s Holmes-road, Kentish Town, by 511 places, and out the various improvements to the existing b for the London School Board :—

Gregar and Son	£17,498		
Willmott and Sons	17,375		
Holliday and Greenwood ...	16,983		
Foster and Dicksee...	16,705		
Grover and Son	16,427		
Coxhead, F. J.	16,213	1	
Cox, C. (accepted)	16,100		

[(*a*) Cost of school buildings and closets, (*b*) tar pavement and covered playgrounds, £ boundary walls and gates, £425; (*d*) two teachers £200; (*e*) glazed bricks, £1,037; (*f*) works to th ing buildings, £1,877; (*g*) cost of extra depth of tions, £430; for brickwork to be built in cem £280; total, £16,380. Cost per head of (*a*), £22 total cost per head, £32 1s. 1d.]

LONDON.—For carrying out the superstructure o sion of offices for the London School Board. Mr Edis, F.S.A., architect :—

Messom	£49,750		
Boyce	47,620		
Forster and Dicksee	47,161		
Higgs and Hill (accepted) ...	46 940		
Lawrance and Son	46,893		

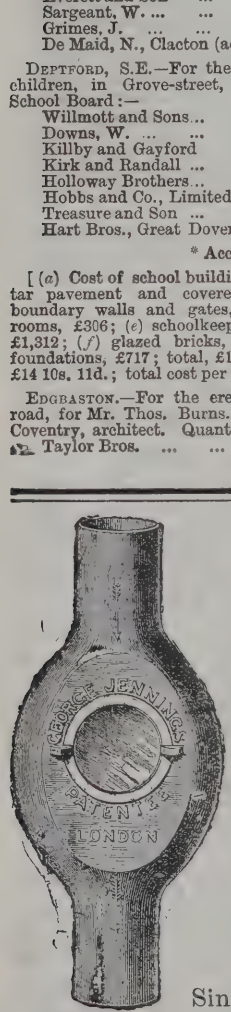
[Messrs. Mowlem and Co. and Patman and Fot ham declined to tender on account of strike; Walker and Slater withdrew tender (£38,000). M recommended acceptance of second lowest tender, ground that it would cost the board more than th ence of £137 to take over the plants, offices, and s of Messrs Higgs and Hill, whose prices were the and had been accepted, for the foundation work.]

LONDON.—For sanitary work at 10, Appac Brixton, S.W., for Mr. C. Coath. Mr. M. V. Tr Acre-lane Brixton, S.W., architect and surveyor :

Cowper, Brixton	£48	1	
Freight, Brixton	47	1	
Read, Brixton	45	1	

LONDON.—For new shopfront, 225, Regent-str Mr. Wright. Mr. M. V. Treleaven, Acre-lane, S.W., architect and surveyor :—

Read, Brixton	£519		
Cowper, Brixton	485		
Sumner, Hampstead	368	1	



JENNINGS' PATENT BALL TRAPS

For Lavatory, Bath, and Overflow Wastes.

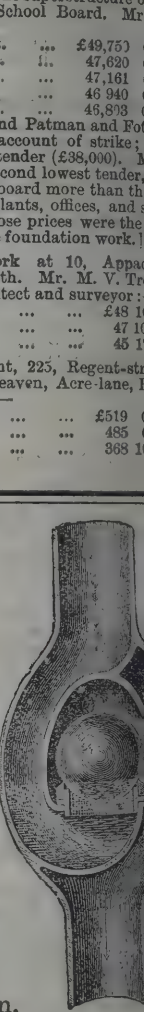
THESE TRAPS (which consist of Indiarubber Balls fitting on seatings of the same material) possess **important advantages** over the ordinary kind; they constitute a **perfect seal** against back pressure; are **not** affected by absorption, evaporation, or siphonage, and are efficient under all conditions. They are made of various sizes, from 1in. to 2½in., and can be seen at the Works, where they may be subjected to experiments to test their efficiency.

Prices and particulars on application to

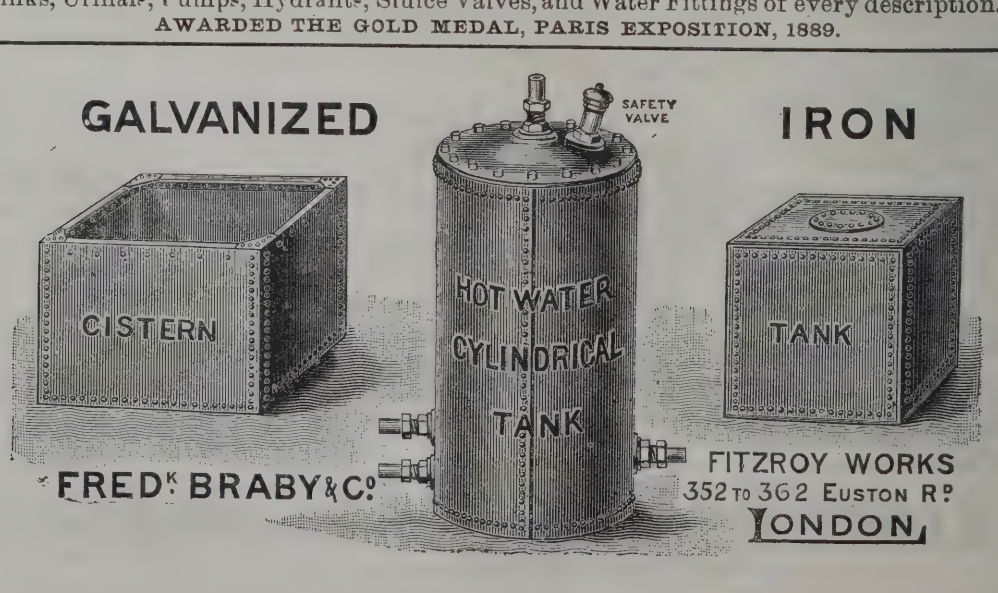
GEORGE JENNINGS, Sanitary Engineer, Stangate, S.E.

Patentee and Manufacturer of Improved Tip-up Lavatories, Baths, Water-closets, Sinks, Urinals, Pumps, Hydrants, Sluice Valves, and Water Fittings of every description.

AWARDED THE GOLD MEDAL, PARIS EXPOSITION, 1889.



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FITZROY WORKS
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LONDON

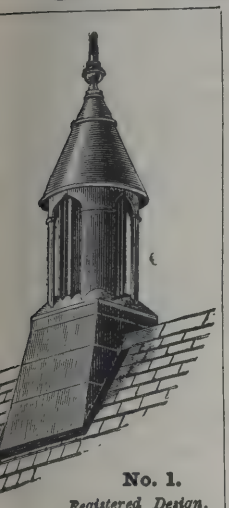
ROBERT BOYLE & SON'S

Latest Improved Patent (1882)

ELF-ACTING AIR-PUMP VENTILATOR.

(PERFECTED OCTOBER, 1887.)

50 PER CENT. REDUCTION IN PRICE.



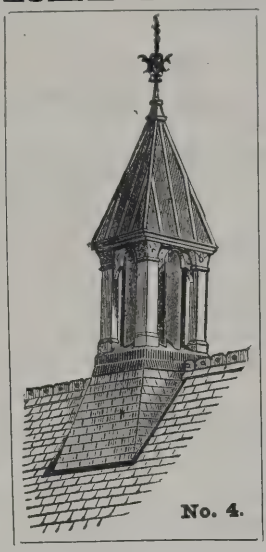
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Registered Design.

The most Powerful Exhaust and

CHEAPEST VENTILATOR IN THE MARKET.

IMPERVIOUS TO WET AND DOWN-DRAUGHT.

Strongly made of the Best Steel, Galvanised, and Finest Workmanship.



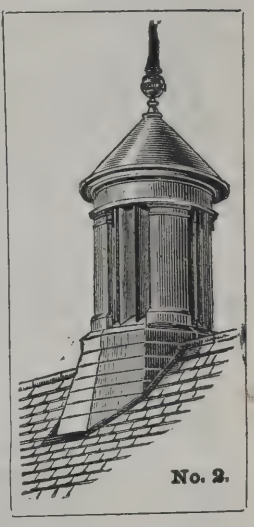
No. 4.

CAUTION TO ARCHITECTS.

FRAUDULENT SUBSTITUTION.

Having received complaints alleging the failure in certain cases of the Air-Pump Ventilator, upon examination being made it was found in every instance that the contractor had substituted (to secure a greater profit to himself) a cheap and inferior Ventilator resembling, in outward appearance, the Air-Pump Ventilator which had been specified to be used.

It is respectfully requested that, in specifying the Ventilator, the words "ROBERT BOYLE & SON'S LATEST IMPROVED PATENT SELF-ACTING AIR-PUMP VENTILATOR" be used.



No. 2.

ROBERT BOYLE & SON'S

Latest Improved Patent (1882)

L PIPE, DRAIN, & SEWER VENTILATORS.

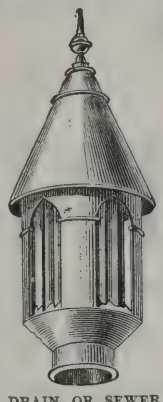
The Cheapest and most efficient in the Market.

FROM **12s.** EACH.

Approved of and used by Baldwin Latham, C.E., Bailey-Denton, C.E., W. Eassie, C.E., and by all the leading Architects, Sanitary Engineers, Builders, and Plumbers in the United Kingdom.



PIPE LATOR.



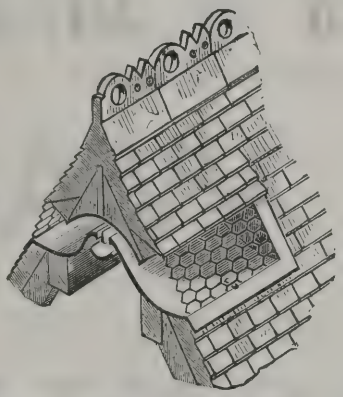
DRAIN OR SEWER VENTILATOR.

ROBERT BOYLE & SON'S

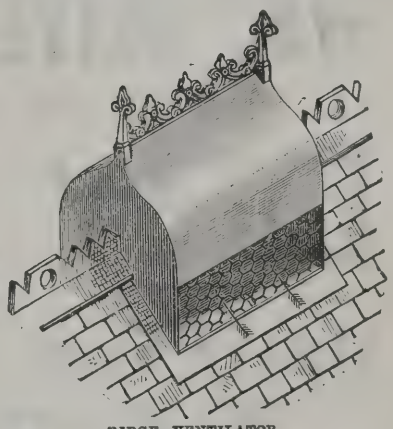
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CONCEALED ROOF VENTILATOR.

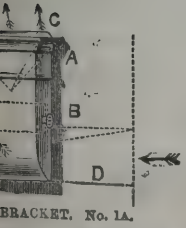


RIDGE VENTILATOR.

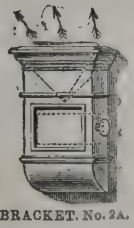
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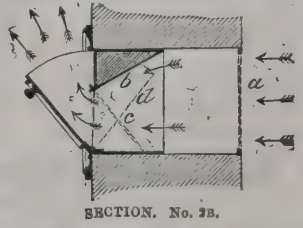
BRACKET. No. 1A.



BRACKET. No. 2A.



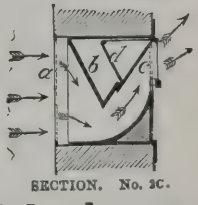
PANEL. No. 2B.



SECTION. No. 2B.



PANEL. No. 2C.



SECTION. No. 2C.

B.—All the above Appliances d none are genuine unless they ade Mark, any Infringement Two Years'

Registered Title — SELF-ACTING AIR-PUMP VENTILATOR — Trade Mark.

are Manufactured solely by us, bear our Registered Title and of which involves a penalty of Imprisonment.

bert Boyle & Son, Ltd., 64, Holborn Viaduct, London; and 110, Bothwell St., Glasgow.

CATALOGUES, PRICE LISTS, &c., SENT POST FREE ON APPLICATION.

London.—For the erection of additional wards to the workhouse, Homerton, for the Guardians of the Hackney Union. Mr. W. A. Finch, 76, Victoria Park-road, Hackney, N.E., architect:—

Garlick and Horton	£1,999	0	0
Brass and Son	1,535	0	0
Mollett, J. H.	1,435	0	0
Holland, J.	1,293	0	0
Porter, A., Tottenham (accepted)	1,183	0	0

London, W.—For pewterers' work to the King's Arms, Glasshouse-street, Regent-street, for Messrs. Porter and Co. Mr. H. I. Newton, 49, Victoria-street, Westminster, S.W., architect:—
Sanders and Son, High Holborn (accepted).

London.—For the erection of a warehouse, 33 and 35, Neal-street, Long Acre, for Mrs. Ann Mercer. Mr. W. H. Woodroffe, A.R.I.B.A., 214, Great Dover-street, S.E., architect:—

Outhwaite and Son	£2,769	0	0
Hart Bros.	2,697	0	0
Holloway Bros.	2,689	0	0
Smith, J., and Sons	2,689	0	0
Downs, W.	2,677	0	0
Hall, Beddall, and Co.	2,648	0	0
Newton, G	2,600	0	0
Burman, H., and Sons	2,475	0	0
Parker, G. (accepted)	2,250	0	0

Northaw, Herts.—For new schoolroom and dormitories. Mr. Ernest Turner, 246, Regent-street, architect:—

Jerves, Hitchin	£2,221	12	6
Holloway Bros.	2,130	0	0
Aldin Bros. and Davies (accepted)	2,070	0	0

Peckham, S.E.—For the erection of a school for 803 children in Bird in Bush-road, Peckham, for the London School Board:—

Killby and Gayford	£17,864	0	0
Foster and Dicksee	17,764	0	0
Lovatt, H.	17,621	0	0
Lathey Bros.	16,783	0	0
Treasure and Son	16,758	0	0
Hobbs and Co., Limited	16,634	0	0
Hart Bros.	16,567	0	0
Holloways Bros. (accepted) ...	16,367	0	0

[(*a*) Cost of school buildings and closets, £10,956; (*b*) tar pavement and covered playgrounds, £1,023; (*c*) boundary walls and gates, £707; (*d*) three teachers' rooms, £306; (*e*) schoolkeeper's house and cookery centre under, £1,345; (*f*) glazed bricks, £1,350; (*g*) extra depth of foundations, £680; add for brickwork to be built in cement, £436; total, £16,813. Cost per head of (*a*), £13 12s. 10d.; total cost per head, £20 18s. 6d.]

Redland, Bristol.—For the erection of a pair of semi-detached villas in Rokeby-avenue, for the Bristol Capitalists' Association, Ltd., Stephen-street, Bristol. Mr. A. Barratt, Somerset Chambers, Corn-street, Bristol, surveyor:—

Assets Purchase Co	£1,177	0	0
Love, E.	1,075	0	0
Podger, W.	1,050	0	0
Tambling, A. (accepted)	1,020	0	0

All of Bristol.

Redland, Bristol.—For the erection of a pair of semi-detached villas in Montrose-avenue, for the Bristol Capitalists' Association, Ltd., Stephen-street, Bristol. Mr. A. Barratt, Somerset Chambers, Corn-street, Bristol, surveyor:—

Tambling, A.	£1,262	0	0
Assets Purchase Co.	1,196	0	0
Morris, D.	1,185	0	0
Love, E.	1,150	0	0
Podger, W. (accepted)	1,145	0	0

Stoke, near Coventry.—For erection of house for Mr. Jansen. Mr. Bradford Tomlinson, Coventry, architect:—

Gough	£427	0	0

Streatham.—For alterations at the Streatham Common Branch of the London and South-Western Bank. Messrs. Tolley and Son, architect. Quantities by Messrs. Parr and Son:—

	A.			B.		
Candler and Son ...	£1,493	0	0	£1,145	0	0
Smith and Son ...	1,488	0	0	1,135	0	0
Mason	1,475	0	0	1,125	0	0
Walker	1,446	0	0	1,029	0	0
Johnson & Co., Ld.	1,360	0	0	1,037	0	0
Gould and Brand...	1,325	0	0	1,019	0	0
Bryan and Son ...	1,325	0	0	978	0	0
Bowyer	1,296	0	0	995	0	0
Marriage*	1,210	0	0	920	0	0

* Accepted.

Talworth, Surbiton, Surrey.—For the construction of a sewer in Douglas-road, for the National Land Corporation, Limited. Messrs. Pooley and Follett, 21, John-street, Adelphi, W.C., surveyors:—

Harris, E., Talworth	£270	0	0
Nicholls, W., Woodgreen	199	0	0
Kavanagh, S., Talworth	175	11	0
Cunliffe, W., Kingston-on-Thames*	166	10	0

* Accepted.

Todmorden.—For desks and fittings at Hebden-road school, for the Todmorden school board:—
Halstead Brothers (accepted).

Wainstalls, near Halifax.—For the work in highering and dividing Moorfield Lodge in dwelling-houses. Mr. T. L. Patchett, Halifax, archit
Accepted contractors.
Excavator, mason, and bricklayers' work:—Pickles, Thos., Midgley.
Carpenter and joiners' work:—Marsland, E., H
Plumber and glaziers' work:—Calvert, J., Bo
Slater and plasterers' work:—Barrett, S., and Son, Pellon.

Woolwich, North.—For the erection of cott and alterations to the Three Crowns, for Messrs and Co., brewers. Mr. J. E. Pinder, Bridge South Tottenham, N., architect:—
Wood, C., Columbia-road, Hackney-road, £1,
(Accepted. No competition.)

Ystradyfodwg.—For constructing the Rhond tion of the Ystradyfodwg main sewerage:—
Parker, W. R & Co. (accepted), £45,494.

EXTRAORDINARY OFFE
BUILDERS.—Leasehold Enfranchisement Supe
FREEHOLD BUILDING LAND to be conveyed free, su
rent charge for 99 years, after which the freehold will re
property of the purchaser. The land is close to Norwood Ju
the corner of two first-class roads, paved and taken to by t
years ago. Seven houses must be built to cost £400 ea
charge £5 per house. Improved rent purchased.—Apply to
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ESTABLISHED BUSINESS carried on by the late Antho
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excellent stock, machinery, and plant.—Apply to Mr. MA
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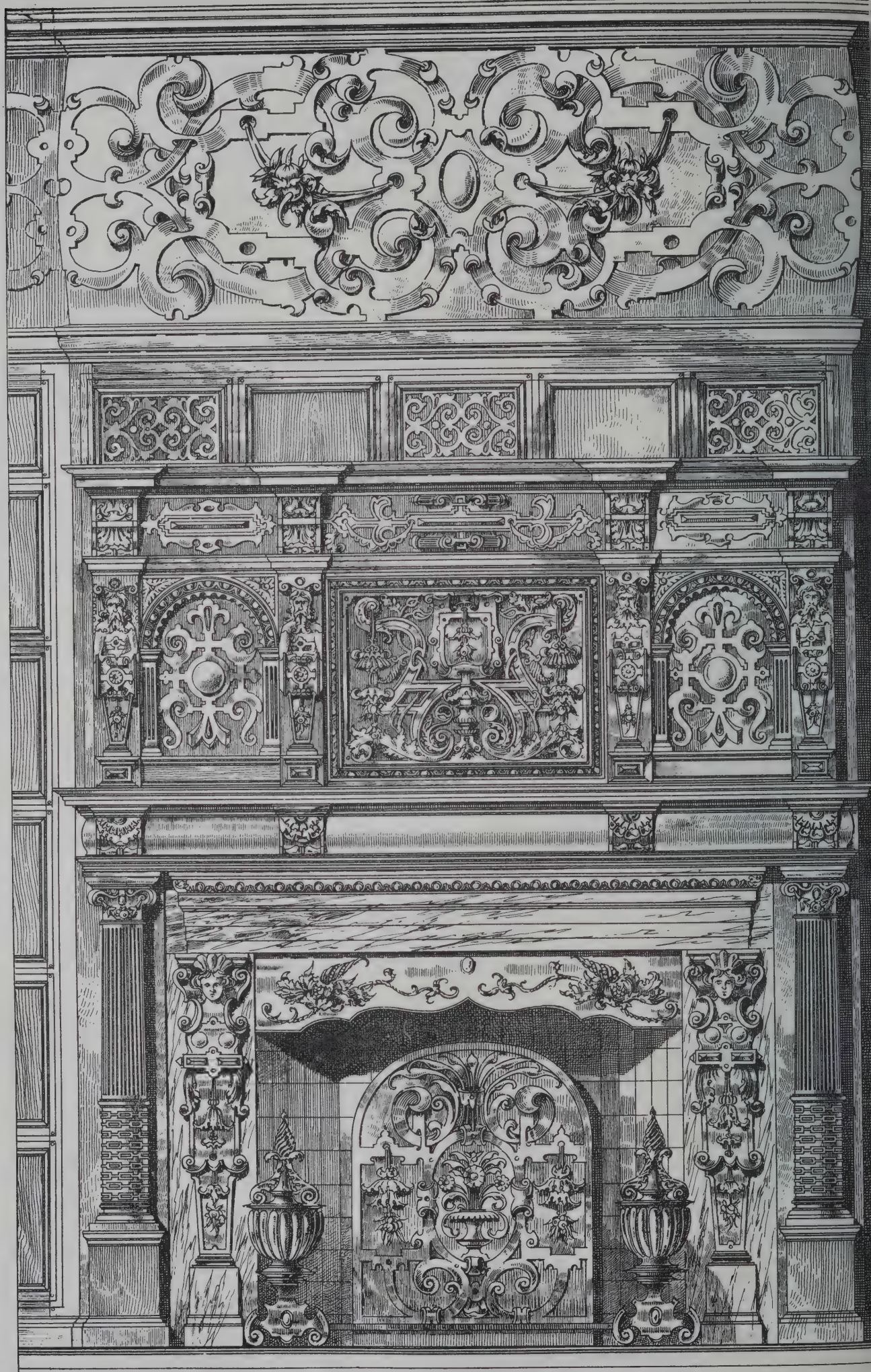
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Fire Tiles and Lumps.

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Urinals.
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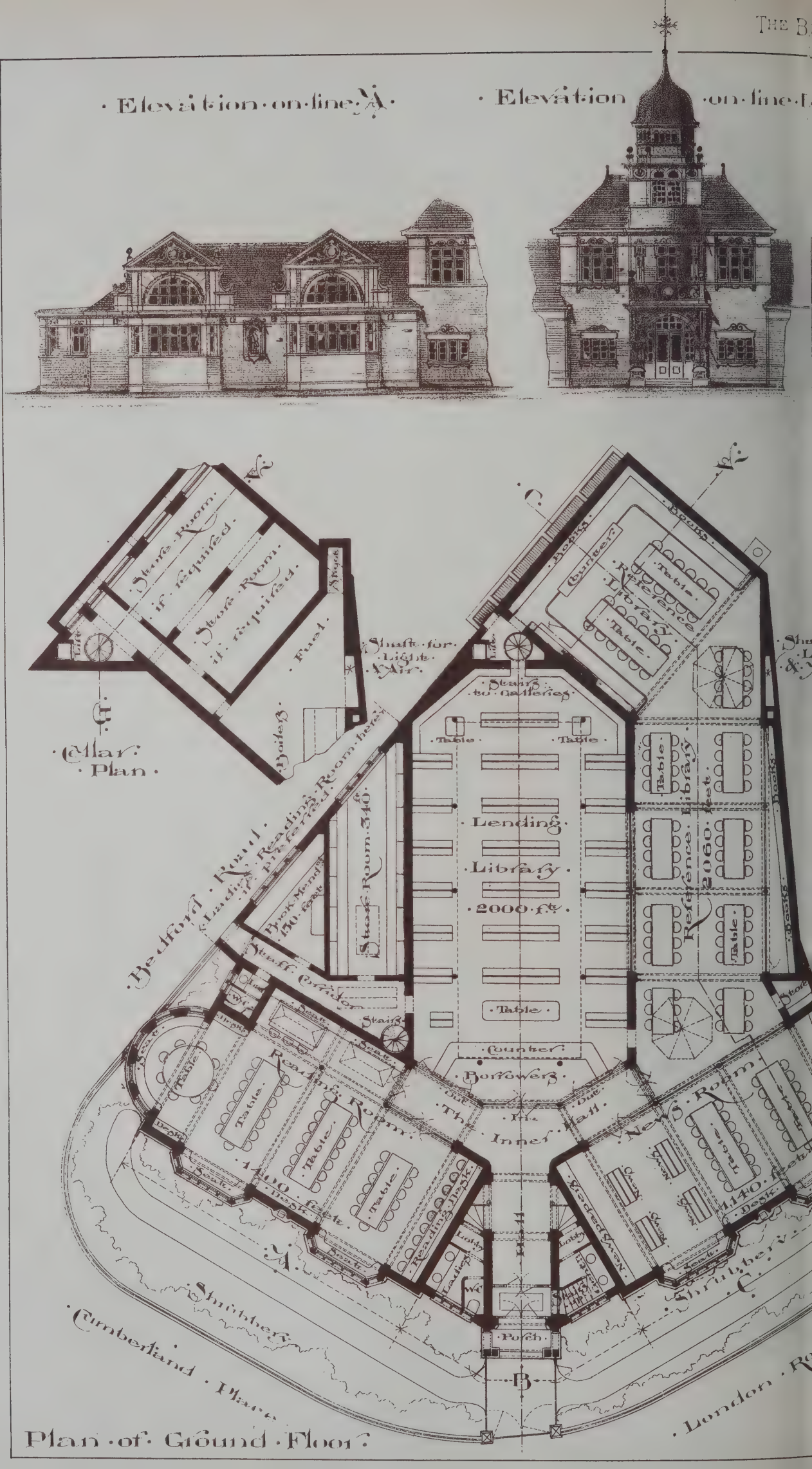
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A Fireplace in new Billiard Rm Mill H

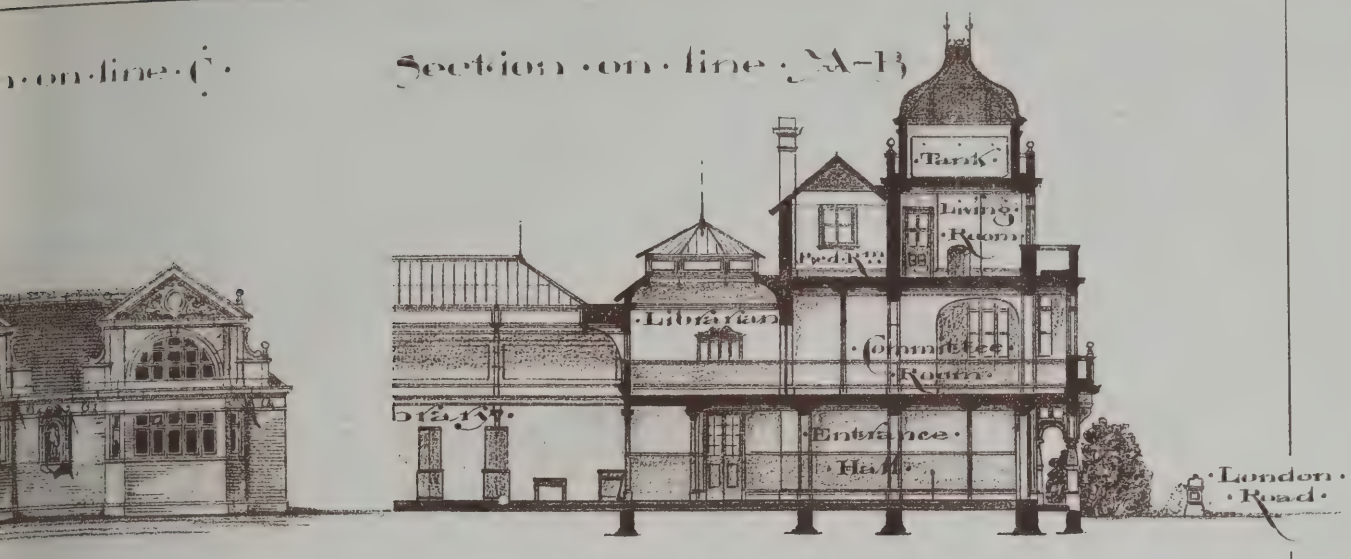
ARTHUR MARSHALL A.R.I.B.A. AND GEORGE TURNER, ARCHITECTS

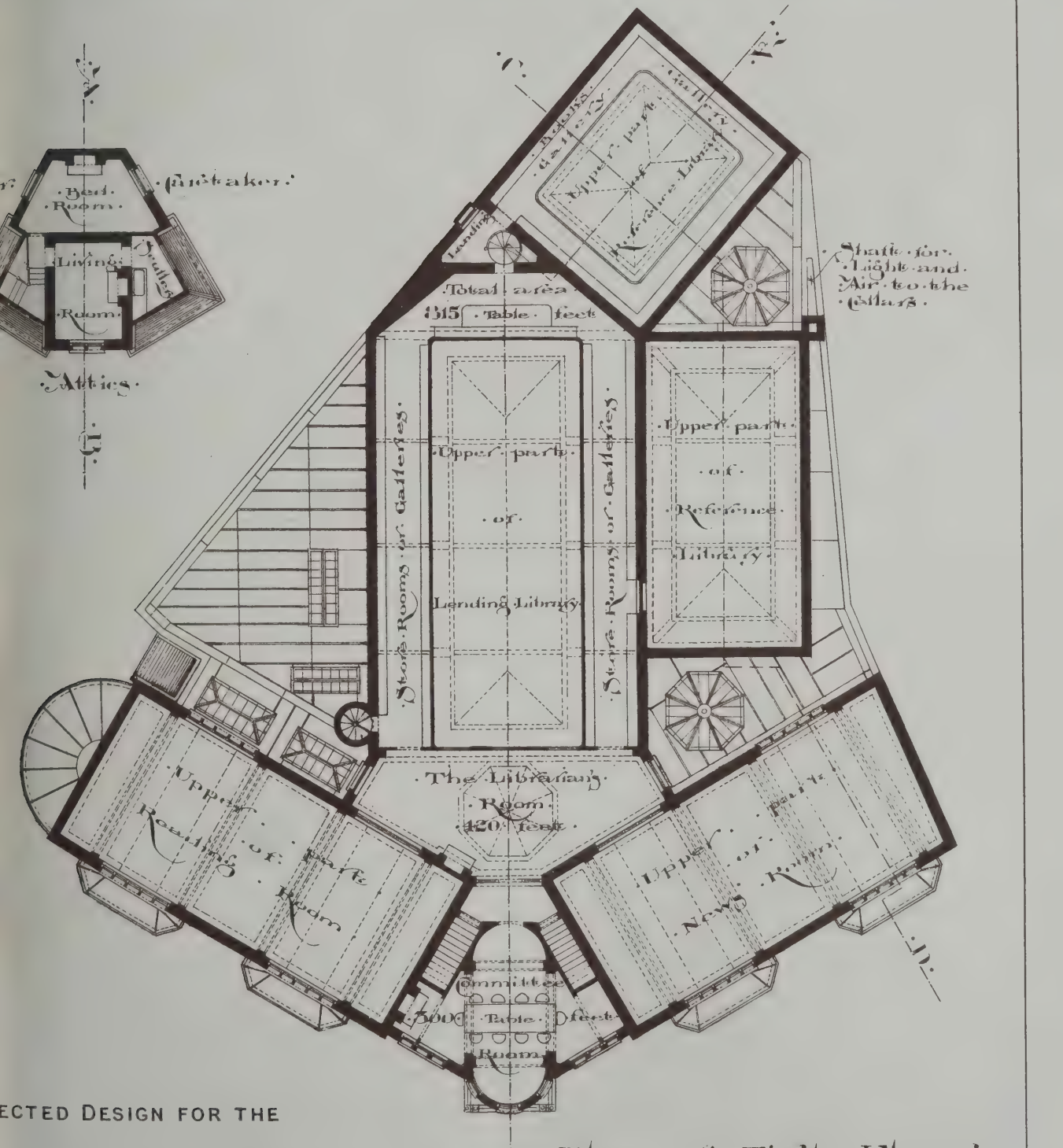
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Elevation on line A
Elevation on line
Store Room if required
Store Room if required
Store Room if required
Fuel
Boilers
Shaft for Light & Air
Cellar Plan
Books
Counter
Reference Library
Table
Stairs to Galleries
Lending Library 2000 ft
Reference Library 2060 feet
Bedford Row
Ladies' Reading Room if required
Store Room 340
Staff Common Room
Stairs
Reading Room
1100 feet
Desk
Inner Hall
Borrowers
Porch
News Room
1140 feet
Bracketed Shelves
Shrubbery
Cumberland Place
London
Plan of Ground Floor

n·on·line·C·

Section·on·line·A-B





ECTED DESIGN FOR THE

AMPTON FREE LIBRARY.

· Plan · of · First · Floor ·

A.E.J.GUY, ARCHITECT.

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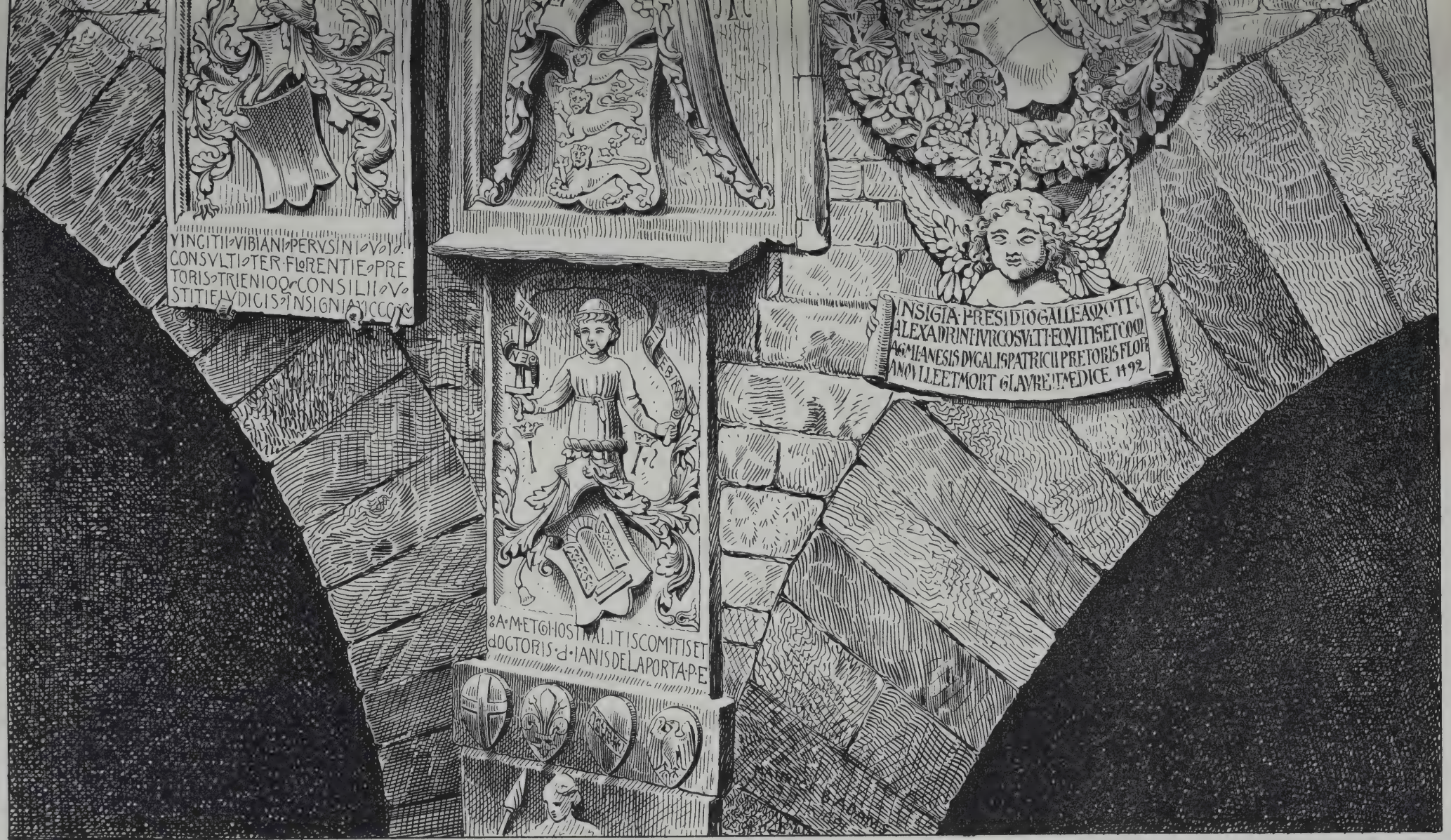


CARLISLE STREET BOARD SCHOOL SHEFFIELD.

Herbert Hodgson ARIBA
Jas E. Benton MSA } Architects

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AP MAGIFIC MICTIS DN LYDOVICDE
CACALVI DE BONONIA POT FLORANAS
A MAG ZGEN
BYFFARDI C IN LVI DE NEAPOLI
POTESTATIS FLORENCE 1451 ET 52



Arms of the Podestàs in the Courtyard of the BARGELLO FLORENCE

DRAWN BY MAURICE B ADAMS

Photo-Lithographed & Printed by James Akerman, 6, Queen Square, W C


A COUNTRY
PARSONAGE
FH. TULLOCH
ARCHITECT
5 Lancaster
Place
Strand.



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IE BUILDING NEWS
AND ENGINEERING JOURNAL.
VOL. LXI.—No. 1919.
FRIDAY, OCTOBER 16, 1891.

ESIGN AND EXECUTION OF BUILDINGS.

GREAT many of the failures in the design and construction of buildings ng from a want of skill. It is very true a knowledge of requirements is abso-y essential to an architect before he can gn with any satisfactory assurance; he also wants to know how those irements can be met or complied with in best possible manner. An ordinary der knows the wants of a dwelling-house ty accurately, but his house may, for all , be awkward in arrangement, and ex-ively uncomfortable and distasteful also. engineer may understand better than an itect the requirements of a factory or ping station, yet the result of his know-e may be anything but a satisfactory solu-; it may be full of crudities which a ful architect could have obviated if he had instructed in the actual requirements; nat we have buildings that fulfil require-ts, but are unskilfully designed, and rs that are skilful in design, but inade-te to meet the requirements. This is, ed, the wide gulf which separates build-from architecture, and which, so long as lifications are different, must continue to rate the engineer from the architect. have abundant and unfortunate wit-es of this divorce of requirements from round us. Our great warehouses, mills, ges, engine-houses, are good or bad, just ney exhibit or otherwise skilled or un-ed arrangement. In many instances most satisfactory buildings of these ses have been the joint productions of the ineer and architect, or at least of a man has studied both requirements and itecture. We may leave out of the pre-argument the question of "art" alto-er, for a building is often "artistic" which regiously defective to meet actual wants—nean, of course, that art can be superadded he form of dress without entering into motives of the designer. As there can o skilful adaptation of buildings with-a knowledge of requirements, so there be no art worthy of the name without a terly acquaintance with those essentials. l may enter into all building, for without rt cannot exist, and it is this aptitude ch is so hard to learn. Unfortunately s do not help us much; it is more a gift iscernment than anything else. Again, ring degrees of this endowment are called Good construction is one element, but all. A well-framed roof nicely calculated stresses may be placed over a building: its its purpose well as a covering, but it not strike one as being the most wisely en form of roof. A factory for a particu-kind of machinery is well constructed, but ay be badly planned. The mechanical ection of the structure may, and often , co-exist with meagre ideas and imper-general arrangement. Again, the ils of a building may be perfect, but they , and often do, appear in structures of plan. These last two qualifications—ainly the former—are often conspicuous tructures of the engineer. They may be d the technical qualities of building. y of our hotels, blocks of residential nbers, hospitals and asylums, commercial dings, are conspicuous examples of more in the construction and details than in arrangement or general design, which is a matter of architectural skill. These technical qualities are important, though unfortunately they are often made obtrusive and destructive. They often appear unaccompanied by skilful adaptation or a real grasp of the circumstances. The reason of this is that architects neglect these technical points, and they are consequently left to experts or special tradesmen.

If the profession wish to retain in their own hands the complete design and furniture of buildings, they must arouse themselves from their present passive position. The policy of leaving the fittings and appointments of their buildings to others—non-intervention in technical matters—is scarcely one that befits the theory of "thoroughness" which now pervades all art and is the boast of the Revival. We see what that Renaissance has done to restore ecclesiastical architecture, and is now doing to make domestic art real and permeating in its effects. That end will not be reached till the dwelling-house is no longer the mere receptacle of a farrago of tastes and fancies, but its furniture and appointments are made to agree with the architectural design as far as possible, and in harmony with the decoration. But how to become master of a profession which makes such a large demand on our time and attention is the question. A combination of the qualifications we have described is no easy matter. A skilled designer is one who knows not only exactly what is wanted, but how those various requirements can be arranged to the greatest advantage. To do this he ought to know so much about these details as will enable him to vary their form and position. Nothing is more evident than that if we want to become masters of any subject, or a particular class of building like a hospital or a school, we must be able to alter and modify the fittings to suit our purpose without losing sight of the actual requirements of such fittings. Some men know so little about the points of importance to be kept in view that they are too timid to alter, too diffident to use their own judgment, for fear of spoiling the effect, or making a mistake. Bold alterations and vigorous methods can only be attempted by a master, in the same manner as a great painter can set aside the ordinary conventions of his art, and discard or neglect those technical points which lesser painters are constrained to follow, and just as a proficient musician can now and again ignore with impunity the niceties of the rules of composition—can introduce unexpected progressions, or even suffer consecutive fifths to pass unheeded. In short, the weak and incompetent artist is a slave to technical methods—they have become his master. We see this especially in the various trades connected with building; how little the artistic function has united or controlled them; how often the bricklayer's work or mason's labour is in conflict with those who follow; how the joiner and plasterer work in total disregard of the architectural scheme; how especially the fitter, the carver, the glass and metal worker, and the decorative artist is each doing his best to call attention to his own trade, to obtrude it at the expense of others, unmindful of the value and power of a united aim.

The architect is the only individual who can rally these trades, and bring them to a proper sense of united action. He must in the first place master them. He must be prepared to learn a good deal in the workshop and studio, to visit quarries, manufactories, to find out the practical difficulties of workmanship, the modes and procesess by which materials can be converted and treated. By this preparation he will be better able to prepare detail drawings and specifications. These are the instruments by which the skill of the architect is conveyed to the workmen, and it is regrettable how little they are regarded in this sense. Too strong a line is drawn between design and execution. When his preliminary drawings are approved, the architect thinks his labour is completed. Instead of only being the beginning, they are looked on as the ultimatum, and what remains to be done is the builder's work. This unfortunate estimate of the architect's function has created an undesirable chasm between the architect and builder. To bridge over this chasm should be the object of every one who desires that art thoroughness should be found not only on the paper design but in the actual building. The specification and detail drawings are the only instruments by and through which the designer can convey his meaning. But there are two impediments. The first is the want of practical training on the architect's part; the second, the want of art training on the part of the workmen. The designer is not a master of the trades; the crafts cannot interpret. The first fault is one that costs the profession a great deal; they have to retire, or play "second fiddle" whenever the art craftsman or the engineer appears on the scene. To the sensitive mind it must be remorseful to see a fine interior of a church or a public hall destroyed by fittings and incongruous design, or some atrocious scheme of decoration; a well-designed dining-room spoilt by a wall hanging, a chimney-piece, or brass chandeliers or electroliers of unsuitable character. Much havoc has been done to new buildings by the often execrable taste of warming and ventilating engineers, in fixing coil cases or stoves, or ventilators of a character completely at variance with the style of the building; we have seen also costly residences ruined by the taste of horticultural builders. Surely these things ought to have formed part of the architect's design, or have been reserved by him in the specification. The fact is, he does not know enough about them to undertake the responsibility; he does not like to interfere with the design of a fitting of which or its manufacture he knows very little. If he knew the technical points he might suggest something that, although not according to trade rules, would be, nevertheless, a great improvement. Thus it is that imperfect technical or practical knowledge cripples the architectural design, and permits some flagrant violation of taste or a clumsy mode of execution.

In the second place, the principles and methods of art are unknown to the majority of workmen, who entertain the same exclusive view as regards their function as the architect does. No doubt the contract system has encouraged this view, as every contractor is inclined to place his interpretation on the design. Drawings supplied by the architect pass through several hands, the contractor, his foreman, the operative; each exercises his own judgment; details are altered or amended to meet the "quantities." Discrepancies between the design and detail, or specification and detail, are discovered, and a very different interpretation is given to the drawing from that intended by the architect. For one detail, as a moulding, another is substituted. Some workmen are poor hands at reading and drawing; perhaps they do not see clearly what is intended. At other times they take upon themselves to make alterations which are completely the opposite of what was intended. We cannot expect these impediments to be removed till the profession and the trades begin to understand one another, which will only take place when the present obstacles between the architect and the workman cease to exist. Accurate knowledge of the trades, carefully prepared specifications and details, and artistic training on the part of the operative, are three of the points that call for immediate attention. The class of architectural drawing and the night classes for building construction that have been established in University College by the aid of

the Carpenters' Company, are facilities towards the attainment of accurate working drawings, and the many technical school classes in London and all our large towns afford equal facilities for the operative.

NEW MATERIALS AND THEIR SUGGESTIONS.

WITH what success the older materials of architure may be superseded by newer forms and methods is a question which we are hardly yet in a position to answer. Of course, we cannot expect much by remaining idle or passive, or contenting ourselves by seeing what other nations are doing in utilising new materials and methods of construction, and in so far we agree with Prof. Roger Smith in his opening lecture at University College, that if we are to "work out the evolution of a new English architecture," having for its starting point new and improved methods of construction, and new and improved materials, we must not stand on one side, but accompany the "new departure." There is little doubt that in America we are witnessing many bold experiments with materials like iron in cast and sheet form, which shock the more sensitive artistic minds of our own countrymen. Few of our English architects would like, for instance, to use metal roofing-tiles, iron architectural dressings for external purposes, or metal ceilings; yet in spite of the repugnance one feels for metal in such situations, the use of iron in various forms still continues in the States. Other materials have made their appearance, such as slabs and other constructive forms of slag wool, largely used in floor and partition construction, roofing, and other purposes. Many fresh substances manufactured out of waste products have been introduced, and we can hardly turn over any pages of the advertisements of our building contemporaries in America without coming across new substitutes for building materials. We may continue to be perturbed by these introductions and innovations, but, despite all our prejudices, they are likely to be further pushed. Architects were shocked when iron first came into general use as a building material. The same outcry was heard against concrete as a substitute for brick and stone, and terracotta was not very kindly received at its general appearance, or rather reappearance, some years ago. But since then these materials have entered very largely into our buildings, and with good results. Both the last-named materials are only revivals. Terracotta was well known in Northern Italy, Germany, and the Low Countries centuries ago, and under the hands of Mr. Alfred Waterhouse, Col. Edis, Mr. Collcutt, Mr. Norman Shaw, and others, it has been made to contest the claims of brick and stone. Certainly we could hardly have expected the results it has attained. It is needless to refer here to the improvements in manufacture of terracotta blocks introduced by Messrs. Doulton, and recently noticed in these pages. As for concrete construction, the modern applications have, perhaps, exceeded all that the Romans ever did or contemplated. It would, perhaps, be difficult to define in what particular manner concrete and iron or terracotta have developed themselves architecturally. They have certainly made it possible to build with wider openings, and to increase the voids at the expense of the solids. In other words, concrete and iron have developed a style of architecture which has reduced to a minimum the solid wall, and has thereby promoted a kind of trabeate construction of great advantage to commercial buildings. An iron core surrounded by concrete, brickwork, or terracotta can be made to carry a load which would require a much larger area of brickwork or masonry to accomplish. Then these materials have enabled us to cover areas by floors of great strength and rigidity, to construct vaults and domes of great lightness and strength. The result has been a great economy of material, the reduction of points of support, the tendency of which is to produce a style of architecture of greater lightness and rigidity. A "new departure" has certainly been made in this direction, if architects will only avail themselves of the opportunity. Again, there is no doubt that terracotta has operated in the same direction; it offers considerable facilities for piers and arches, and constructive masonry expedients, and therefore is particularly well adapted for an open and light fenestral style like that of the Renaissance. It certainly favours this sort of architectural expression more than it does the solid astylar Florentine type of construction. The modern architect will do wisely to keep these distinct directions of evolution in mind, and not affect to shut his eyes to them. By using these new materials merely as substitutes for stone and brick, he will be checking, intentionally or not, the natural development of the materials, and be merely embarrassing the older styles. We regret to see so much indiscriminate use of these materials, so much inability to discover or pursue any new departure that may present itself; for it is this awakening to a sense of the value and distinguishing qualities of a new material that we may hope to retain our prestige of being equal to the requirements of the age, and worthy of the *rôle* of 19th-century architects. A daring boldness is to be reprehended as much as an ignorant innovation or a contempt of precedent. These mistakes have surely led to the misgivings of architects in dealing with new materials, to the hesitation of many in the profession to avail themselves of iron and concrete. Yet we cannot afford to proscribe materials which are forcing themselves upon public notice, nor to assert that architecture has already reached perfection and the utmost of its capabilities.

We should be sorry to see iron construction taking the place of timber for roofs, or concrete and terracotta superseding brickwork and masonry; but these things cannot happen unless, indeed, brick, stone, and timber become very scarce, or strikes like that of the carpenters made it compulsory for architects to employ ironwork. These are, however, mere possibilities. We have simply to keep pace with existing manufactures and public requirements. Mere change is not certainly desirable, and no advance has ever been made by discarding the old for the new. But there is one principle to be kept in view—namely, that new materials or new methods call for rules applicable to them, which may vary considerably from those which have been established for the old and traditional methods in use.

As a factor of change, material has not been the only or the most powerful one. Have we not to attribute a great deal of modern architectural progress to new problems in construction? Utilitarian buildings have multiplied to a vast extent, and buildings are put to uses, or rather designed for numerous purposes, unknown to our predecessors. Educational institutions have multiplied also; we have not only high-class and elementary schools, but technical schools, laboratories, and workshops, each requiring a distinct treatment. Have not some of these new problems called for changes in architectural style? It may be a rather complex task to trace the changes in architectural expression due to them; but it is, nevertheless, obvious that functions, altered or new, have invariably produced modifications in style.

An hotel is about to be built at Southend-on-Sea from plans by Mr. F. Chancellor, the estimated cost being £25,000.

MODERN VENTILATION.*

WITH an audience such as this, com exclusively of past masters in sci sanitation, I am relieved of the neces preluding this paper with any argument the importance of the subject. I do not however, that the opinions of many of us coincide if required to define good venti Apparently the point of perfection wo attained if we filled our houses with air pr similar, in its percentage of injurious mat the external atmosphere, varying, howev temperature to suit our ideas of comfort. may appear a simple matter, but unfortu not only have different persons different i comfort, but doctors themselves disagree what change of air in a room constitutes e ventilation. In the case of heating, we thermometer to guide us, and the humar is so constituted that it conceives the body warm, if only the thermometer indicates a fortable temperature. With ventilation different. Persons who have been in th for some time must feel comfortably those coming in from a sharp walk in the air must feel cool; draughts must not and, if the building possesses a gallery temperature there must be as comforta that in the lower portions of the house, much warmth is called "bad ventilat too much draught is "bad ventilation is too much cold. There are many diffi which arise in aërating buildings, and alt the natural laws utilised in such a task a known, unalterable, and simple, yet the a tions of them are diverse. I will briefly ir the more usual plans; to consider their a tages and disadvantages, and from th gather materials for the delineation of a which shall as far as possible obviate objections. In the first place, we must c the essentials of a good method of venti then must see how they are complied with usual systems, and how the problems o failure upon certain points may be solved. first essential of a system of ventilation it shall not produce discomfort by causing ing of cold. Air, even warm air, impin a perceptible extent upon the skin's s causes rapid evaporation, and the avoid this should be the first consideration. It evaporation which causes "a cold," a mere expansion of the air by passing heated surfaces does not prevent it. perfect system is under complete contr must be in our power to increase the intak and the rapidity of its expulsion as circum vary. A hard-and-fast rule cannot be a but we must have a system which at wi wield a giant's power or be quiescent. A must be cheap, and of such a nature as t of its application to existing buildings radical alteration; to cottages or to palac must be simple, so that inexperienced may understand it; and scientific, s accepted philosophical formulæ may success or failure to be reasoned paper. If a system complies with requisites, and yet effects a complete ch the atmosphere of the building, so th that no person is under the obliga inhaling products of previous respiration I think we may look upon it as perfect the nearer it approaches this perfection th worthy its adoption by sanitarians. B tarians I mean those upon whom we sanitary matters, yourselves, surveyors, tects, civil engineers, &c. But it is very that the great responsibility rests upo controlling new buildings, either for the or on behalf of local authorities, and I to say that they are aware, fully, I th their responsibility, severely critical of an vation in sanitary matters, but keen to ap what their judgment and experience sh practical advance. We may divide ven systems into two classes, naming each method of dealing with the mass of ai changed. One class effects a movem increasing the atmospheric pressure at on the other by attenuation, and in both c effort to regain equilibrium is the m attained. One is a method of "*propulsio* other "*extraction*"; one tends to i density, and the other to lessen it. Y

* Lecture delivered at the Free Library, Live Oct. 10, 1891, before the Association of Public Inspectors of Great Britain, by J. F. Simmance.

rve that the tendencies I name are absolutely rned by the disproportionateness of the inlet outlet areas, or by the amount of friction ng in either case. The usual mode of effect- ventilation is the extractive action of the upon the upper extremities of shafts or and although the aspirating effect can only erted under certain conditions, yet there are ny different inventions in the direction of ring these conditions that any attempt to ibe them in detail is hopeless. But all aim ne object—that the passing wind shall ice a rarefying effect at the particular point e it crosses the surface of the still air in the or cowl, thus inducing a movement in the tion of the partial vacuum. Now there rs little doubt that the open tube, with the at a given angle, produces the greatest cting effect. Most of you have read the f results given by Mr. Hellyer in his work "Sanitary Houses," and you will have that there the open tube is placed far down st. But these tests, interesting as they are, no idea of the relative value of the cowls the chief information being as to which extracted most under the then conditions irections of the wind, or which allowed the *blow down*. It is obvious that a wind ing towards the earth, at however small an (and Glaisher's balloon records prove ctly that actually vertical currents of air , would entirely prevent the open tube from an outlet, whilst ingeniously constructed would be scarcely adversely affected at all. er would the placing of a cap over the open help it much as to be entirely useful in nting "down blow": it must necessarily ict favourable winds from exercising their spiration. The little models of various which we all have in our offices afford good ples of the power of the open tube, for by ing the cowl part and blowing across the tube, the little ball of cotton will be more ly lifted than with the cowl in position. ertical cowls with closed tops and guarded own the sides prevent *down blow* entirely not say *down draught*, as no cowl in the *per se*, has ever stopped *that*); but these under the disadvantages of being exposed e wind upon one side only, and upon the rd side air rushes in to compensate for the tion on the windward side, so the un- ate ventilating shaft only gets part of ailable power. This pressure of wind upon eward side of an obstacle, or, I should say, ant of proportion between the wind pres- on the windward and leeward sides as red with the known velocity of the passing can be tested by holding a candle close t a column or similar obstacle in the full way, but upon the side of the column not d to the wind. If the current is steady ill see the flame set in *towards* the column. ir in which the candle is held being ed is normally motionless; but the t passing it on both sides aspirates equally the stagnant spot, and causes two equal ools or eddies, to supply which air has to *towards* the column. A few experiments way, or with Dr. Lind's anemoscope, will orcibly the scientific imperfection of cowls openings on both the windward and lee- ides; or, in fact, of all cowls in which the gs are not all acted upon *instantaneously* e wind. The revolving "turtle back" a good example of an open tube exhauster; e trouble that ensues when a sudden gust d catches it full in the mouth, and the ainty which exists as to when such a ophe may happen, render its use less ed than it might be. This same difficulty pe encountered in all cases of revolving In most cases their large adoption is the e of their appearing so plausible to an ntific public, as in the case of the imedean," which was graphically described as "*screwing the foul air out of the room.*" n round by engine power it certainly screw tar up out of a tar well; but any- of less consistency would refuse to to its coaxing. This cowl extracts like by aspiration alone; the "screw" is of a nonentity, or worse. But this cowl acts ne thermometer I have mentioned. It something is going on, and the dearly love to see something moving. sses of cowls with a slanting flange round edge of an open tube, and with a plate to prevent rain entering, are amongst the best; but the wide area of the open tube, and the impossibility of preventing some winds from getting obliquely into its open mouth, are its weak points. Putting aside all questions as to the *kind* of cowl, it is certain that, with a wind moving, ventilation, and adequate ventilation, may be obtained. But it fails upon all the essential points except one. If the wind exceeds a moderate breeze, the extraction is too rapid, producing very disagreeable draughts, and is only under control by the partial—or entire—closing of inlets and outlets. And unless the wind remains constant and equal for a period unusual in this latitude, this opening and shutting might well engage the attention of a couple of men. Persons in a room ventilated by means of extracting cowls alone are at the mercy of every variation of the wind—a condition of things quite unworthy of our times. But nearly every building is so ventilated nowadays, and it may appear difficult to reconcile my opinions with the fact that many of the most eminent architects of the day are satisfied with ventilation by cowls alone. Ingenious methods have been devised for nullifying the serious objections I mention, the most intelligent being the adjustment of an intricate labyrinth of cords, weights, pulleys, dampers, &c., by which the whole ventilation scheme may be amended, and the entire aperture closed. Persons destitute of invention arrive at the same end by stuffing dusters and newspapers into the ventilator; but still the fact remains that there is a ventilator on the roof, and (again calling to mind that thermometer which, fixed at 70°, saved 50 per cent. of fuel) that is considered by the plastic human mind as sufficient evidence of ventilation. But the uncertainty of the method of extracting by cowls alone is too apparent for discussion. It is difficult to believe that architects can place reliance in ventilating engineers who prepare hard and fast formulæ on the subject, and who say "A cowl of my make, of such a diameter, to every so many feet of cubical area will extract so much air per hour," without taking into consideration the wind, which has to provide engine power for the whole business, and which is absolutely master of the situation. The only one of the essential conditions with which the cowl system complies is its cheapness, and it is as cheap as it is inefficient. The system for future use is not one dependent upon the whims of the wind, and we must look for a force more reliable and controllable. Such forces are not very numerous. We may use water, steam, or gas, either as spray injectors, or as motive power for fan-driving. Gravity may be used for the same by means of weights and pulleys, but I do not think it is often adopted, nor clockwork (spring motion), nor electricity. Now all these are controllable, and may be made to increase or decrease the ventilation at will, and to propel air into a room or to extract. A water jet is simple, cheap, and easy to work: its disadvantage is that the air becomes saturated. This is all right in summer, but in winter the air must be passed over some absorbent material, and then again the jet is affected by frost. As a power for fan-driving it is good, but only has one rate of economical speed according to size of engine and fan. Somehow, water motors are not yet very popular, and it is only amongst organs and barbers that they make notable headway. This is possibly the fault of the water authorities, who do not encourage motors; and it may also be on account of the uncertainty of water supply, unless a storage is arranged, and the difficulty then is to get head enough. For spells of work of a few hours' duration the gas-engine is infinitely preferable for fan-driving, whilst for large work a steam engine is as yet unapproached. In all these methods the question of position, whether to extract or propel, is optional. At the Liverpool Town Hall the fan extracts, and at the Mersey Railway, Hamilton-square, the 30ft. fans extract; at the Glasgow Infirmary propulsion is the method. A paper upon this latter installation was read at the meeting of the British Association, and many arguments were brought forward to prove the advantages of the method. As these will apply to all similar cases of propulsive ventilation, I will mention the more important points:—The propulsion of fresh air into the building at the floor line, and not the extraction of foul air by way of the roof; the filtration of incoming air by passing through damp material; the absolute prevention of back-draughts or down-currents. There is no doubt that some of these items are real advantages, but these are not peculiar to the system under consideration. It is difficult at first glance to see the difference between the principles of *extracting* at the roof line and *forcing out* at the roof line; but later on in the paper we find a sort of explanatory note. The air in the building is compressed to the extent of $\frac{1}{20}$ to $\frac{1}{10}$ of an inch of water, and so, should there be any leaky joint of a drain or soil pipe, sewer gas cannot escape, the external pressure being the greater. Ventilation by extraction acts in just the opposite direction, and sucks out sewer gas from faulty plumbing work. The fallacies of the arguments are apparent to me, and probably are already to you. To maintain a pressure of $\frac{1}{10}$ of an inch of water in a room by means of a fan means that the exits must be smaller than the inlet, so that the pressure accumulates, and at first one does not see the object of this arrangement. But it becomes startlingly apparent when the faulty plumbing comes in, and it is evident that it is for the sole purpose of guarding against Glasgow plumbers that the air of the infirmary is maintained at this undue density. But supposing such an internal pressure valuable sanitarily, would not the opening of a door or a window upset the system by releasing the pressure? I think, too, that the provision of an abnormal atmospheric pressure upon the house side of a w.c. trap is a distinct mistake. Seals of traps are not too deep as it is, and with the house side further depressed and part of the proper seal sent down the branch soil-pipe, it appears to me that the impulse of shutting a door or of the closing the outlets for a few seconds might easily unseal the trap, and would certainly do so if coincident with a flush on the same stack from another floor. The convenience of being able to filter the air as it comes in, and to warm or cool it, is undeniable, but the same is arranged for in most systems. Upon the whole, ventilation by propulsion appears to me to be imperfect and undesirable, as, besides the difficulties attending the maintenance of pressure, it is no cheaper than using the same fan and engine for extraction, requires the same attention, and is just as costly to install. I think I may leave the subject of fan ventilation, as it distinctly contravenes one of the rules of our code of essentials—viz., that it shall be cheap to install, and be easily worked by an unscientific person. Still, I look upon ventilation by extraction, by a fan worked by a gas-engine, as one of the best methods *under certain conditions*, and I believe it will come more and more into use. But it is not a popular system, suitable, as I have said, for the cottage and the mansion. The method I advocate, and arguments in the favour of which I wish to place before you in this paper, is an old one—the very oldest, in fact; but its successful application in the particular direction I desire to describe has until recently been difficult. The problems I think requiring solution are those attending the proper and economical utilisation of heat to ventilation. As I say, it is the oldest system, as old as time itself. The aëration of the entire earth is effected by it. The winds which sweep through crowded alleys and courts, scattering the stagnant exhalations of many lungs, of much filth, and possibly of much disease, are the heaven-sent disinfectants, and their sole motive force is heat. The almost imperceptible breeze which creeps amongst, and yet scarcely stirs, the blades of grass; which carries the tiny green shoots their diet of oxygen and removes the resultant impurities, or, it may be, brings the change of diet, and, parting with its load of carbon, is revivified by the plant itself—this gentle wind has no cause but heat, and but for heat would not exist. With such examples, surely we cannot be wrong in looking to heat as the true and natural source of ventilation. Those of you who listened to Dr. Carpenter's Presidential Address last December will remember the keynote which pervaded the whole, and which rang out with especial clearness as coming from a man of his position and experience. Dr. Carpenter pointed to *Nature's* method as our great example in sanitary matters, to the evils which always ensued upon a deliberate disregard of them, to the perfect results achievable by their observance. And civilisation is proving this day after day. We are trusting more to Nature, less to art; more to pure living than to drugs; more to air and water than to artificial disinfectants and patented "germ-destroyers." We recognise Nature in the *requirements* of ventilation. I do not believe that we can have a better teacher in this *accomplishment*. We do not often consider to what a great extent the earth's surface is

aërated by means of heat, of the gigantic scheme working out around us. In my own mind I am convinced that the means arranged for effecting movements of atmosphere are explanations of many phenomena. The differing specific heats of bodies and the variations in their conductivity are, in my opinion, but parts of the great plan of ventilation, by which a mass of air in contact with two differing bodies will of itself commence a rotary motion, exposing to each surface constantly changing molecules. Supposing the atmosphere to be still, it pre-supposes an absolute similarity in the influences at work on it in all directions; and as in most cases this is obviously impossible, it is evident that the air must be moving, imperceptibly to us, but still in motion. Thus, in every corner of the garden where an exposed leaf is wet and a protected one dry, between them the air is being caused to move by the influence of the two leaves. In a room the air will be dropping by gravity down the polished furniture, and be rising up the flock-papered walls towards the ceiling. In the street, where a brick house and a stone house leave an air-space between, the steady effort towards equilibrium (which will never be reached) is being made, and the air, condensed by the cooler surface, forces the lighter air to rise. It is difficult to bring this to the light of an experiment, but I succeeded, I think, on one occasion in producing the result. My apparatus was a wooden box with a glass front, the wood of the back opposite the glass being covered with cork. Within a sixteenth of both the glass and the cork, and parallel with both, were two gossamer threads hanging on to the glass and cork, but kept away about the sixteenth. The box was as airtight as I could make it, being painted several times and varnished. My theory was that the bellying up or down of the threads would show the movement of the air under the influences of the opposing surfaces of cork and glass. As I say, I think I succeeded, as the curvature of the thread attached to the glass remained downward, whilst a very apparent upward curve was produced by what I took, and now believe to be, the current of air rising on the cork side to compensate for the condensing effect of the glass. I did all I could to protect the box from unequal luminous heat, and only took rapid observations, so that the heat of the face should not affect it. Imperfect as was the experiment, and perhaps unworthy of being presented to a scientific society, yet it made me the more certain in my mind that the system of aërating provided by the Maker of the universe is far more wonderful and far-reaching than we, as a rule, think it. I need not go into the question of the cause of winds and such-like disturbances in the earth's atmosphere. As heat does not exist unless something exists for the heat rays to impinge upon, so the sun's rays do not produce heat until they reach the earth, and the radiation from thence causes the disturbance of atmospheric equilibrium which originates wind. It is enough to say heat is the natural, and the only natural, way of effecting atmospheric movements, and this natural way is *direct application* (direct as opposed to the use of heat through mechanical media). It is the most efficient and most economical mode of ventilation. There are many ways of utilising heat in this direction. From the time when our ancestors crouched round a blazing fire in the centre of their huts, and allowed the smoke to wander away through a single hole in the roof; from the time when our fathers sat as children inside the ingle nook, and the enormous draught caused the invention of those high-backed settles and Brobdingnagian armchairs, up to now, when the Houses of Parliament are ventilated by the impetus given to the column of air in an enormous shaft by a glowing mass of coke at its base: the natural reason (may I call it *instinct?*) of the human race has led them to heat as a means of ventilation. For centuries they simply obeyed the knowledge which pointed out that the combustion of fuel produced a certain sensation which made their rudely-fashioned houses more comfortable; but they were unconsciously obeying the mandates of the great Sanitary Inspector who had made it impossible for them to obtain heat without at the same time effecting ventilation. To build a fire at the foot of a shaft is now the method adopted in many buildings for extracting vitiated air from the various rooms, and with more or less success. When the flue from the heating apparatus is utilised as a duct into which to run separate flues from the rooms, the success, as a rule, is not very apparent. Either the furnace has its draught lessened to an injurious extent by the numerous openings into it, or the consumption of fuel becomes excessive. The plan of encircling the smoke-flue by an auxiliary shafting into which the horizontal flues run is good in theory, but does not work out well, as the heat around the central flue is seldom great—indeed, often not hotter than the products to be extracted from the rooms. A better plan is to adopt a sort of siphon system, such as was introduced and patented years ago by, I think, a Mr. King. In this system the air-shafts from the rooms communicate with a main vertical shaft, closed at its upper end, and opening in the basement into a chamber, which is accessible from the basement only by a well-fitting door. In another corner of this chamber the furnace is erected, from whence a second shaft runs upward, to a greater height than the highest room in the building. Thus, in the first instance, by leaving open the door into the basement the fire can be lighted, and would obtain air freely; but as soon as the fire products had attained any degree of velocity, the close-fitting door is shut, and the column of air in the cold shaft commences to fall by its own gravity. This is just a question of the relative weights of the two columns of air, and the arrangement can be made to work well. Another plan which appears extraordinary in these School Board days is the construction of a sort of pigeon-cot on the roof, and in this to insert a coil of steam-pipe. In this cupola all the ventilating shafts from the rooms terminate, and the heat of the steam-pipe is supposed by some unknown law to suck up the air from these shafts. The way to utilise such an arrangement would naturally be to send a steam-jet through an opening out of the cupola, which would induce a draught. You will perceive that although these methods are all based upon the theory of ventilating by heat, yet they do not at all comply with what we have laid down as requisite for a practicable system to be used under all circumstances. They are not cheap, and although controllable by closing outlets, &c., could never be generally adopted for small dwelling-houses. They also require constant attention. But there is another way of applying heat to ventilation—cheap, automatic, and suitable for all classes of buildings. This is to utilise the heat of gas-lighting. Gas is now so general that we may consider it almost universal; but in country places where petroleum is the only means of lighting my remarks may be deemed to apply equally to it. I am able to say definitely that the amount of gas (whether from coal or from petroleum) which will *light* a room adequately will *ventilate* it adequately. Only the system must be a good one. If it is to be successful, there must be no rule-of-thumb work; but to install it properly is no more expensive than to fit it up in a manner which will insure failure. It is a matter which has received little attention, and for want of such attention has been relegated to the background. The difficulties in the way have appeared insurmountable, and many architects, after considering, and perhaps trying, the system, have become doubtful. The installation has been expensive, as flues have had to be bedded in non-conducting material to prevent danger, and it meant pulling a building to pieces (if not being lighted *de novo*). Then the lights wore out, required new burners, cleaning, and were generally rather inaccessible. The difficulty of preventing down-draught, too, was great, and to overcome this the flues had to be carried in a serpentine way round the building and up the roof until the flue-top could look triumphantly down all the neighbouring chimney-pots. This generally stopped a blow *down*, but just as certainly stopped any draught *up*. All the heat of combustion was absorbed by the shafting before it had gone many feet, possibly condensed, and in that case dropped in water, and spoilt the ceilings and tempers of people below. Ventilating by gas lighting was looked upon as a nuisance, and extravagant pendants, fitted with fishtail burners which blackened the ceilings and also the reputation of gas lightings, were, and are, to a large extent, looked upon as the most scientific and useful way of using gas. But all the faults I have named are non-existent in a properly-arranged system; the installation is cheap, and the results in lighting and ventilation most satisfactory. The ceilings and decorations are preserved, and architects can, by selecting such a system, insure those two desiderata, good light and good air, with which no building, be it as noble as the S[illegible] Law Courts (where I am told the windows [illegible] open, and where the accumulated sigh[illegible] defeated suitors form the only atmosphere), [illegible] useful as the Rotunda Lecture Hall, can r[illegible] the admiration of the public. A ventilating [illegible] light must be without glass or breakable ma[illegible] if fixed at such a height as not to be acce[illegible] at all times, and must be easily lighted [illegible] below. It must be shadowless, and be [illegible] ceptible of being reduced in power to suc[illegible] extent as to give off a heat of not more [illegible] 100deg. at 6in. above the point of ignition [illegible] it must be capable of being increased unt[illegible] full power causes an intake sufficient to fi[illegible] room with fresh air in ten minutes. The [illegible] ing from the light must be such that its ext[illegible] heat is practically *nil*, whilst the int[illegible] temperature must be very high. Its [illegible] must not disfigure the building, and [illegible] be arranged so as not only to pr[illegible] a *blow* down, but a *suck* down, or h[illegible] great enemy an external compression. [illegible] features (which are quite indispensable) c[illegible] arranged by the aid of recent inventions, n[illegible] indeed, all the previously conceived objectio[illegible] ventilation by gas may be obviated. The g[illegible] which I have found to answer best is the ve[illegible] flame system of William Sugg. This a[illegible] burners of steatite, that extraordinary mat[illegible] which, soft as meerschaum naturally, att[illegible] maximum hardness when heated to the me[illegible] point of cast iron. It is non-conducting [illegible] practically everlasting; non-corrodible, an [illegible] alterable in dimensions by heat or col[illegible] cluster of such burners up to the rec[illegible] greatest power are placed immediately belo[illegible] mouth of an extracting shaft, communicin[illegible] direct with the open air either perpendicula[illegible] horizontally. You will probably, and natur[illegible] think that a flame burning vertically close [illegible] ceiling wastes the greater part of its light po[illegible] the cornice of the room, but it is not so. [illegible] experiments made by Mr. Dibdin (Chemist [illegible] London County Council, and who is fast a[illegible] ing the rank of one of the first scientists [illegible] day) prove this conclusively. He found, an[illegible] stated before the Society of Arts, that the ang[illegible] 45° to the vertical of the flame under test ga[illegible] the greatest result in light. In the ing[illegible] ventilating light of which I speak, the dow[illegible] rays at that angle cover the outer area, whil[illegible] upward angle rays are returned to the[illegible] immediately below the light by an enam[illegible] iron reflector. Thus a result in light of re[illegible] brilliancy and economy is obtained. The h[illegible] combustion, being enormous immediately [illegible] the flame, ascends through the aperture pro[illegible] vided, and travels along the shaft. Now th[illegible] shaft is the subject of a further patented invent[illegible] and is lined throughout with a material kn[illegible] asbestos felt. This absolutely prevents any [illegible] densation (which occurs when the products [illegible] the bare tube, and which is not at all preve[illegible] by covering the *outside* of the tube), and [illegible] only so, but utilises the great princip[illegible] ventilating — viz., the conservation of [illegible] Not only is the outer case kept *cool*, bu[illegible] inside is kept *hot*, and whether the sh[illegible] horizontal or vertical, the heat is sustained [illegible] little loss through its length. At a suitable [illegible] communication is restored between the inn[illegible] shaft and a tertiary flue or casing which [illegible] into the room round the ventilating light [illegible] with the impetus gathered from its trave[illegible] you will remember it is not losing heat) the [illegible] cone of hot air rushes out, causing an aspir[illegible] in the outer air tube equal to the action of ga[illegible] of wind at a happy angle upon an oper[illegible] Thus, by aspiration and expansion, air is [illegible] from the room in quantities controllable by [illegible] turning a tap, and the output varied [illegible] 15,000c.ft. per hour to 300,000, for a foot [illegible] in such an apparatus as I have describe[illegible] extract nearly 3,000 times its own volume [illegible] The question of "back-draught," or "[illegible] draught," is one which will occur to m[illegible] you, and it is an important one. We can [illegible] blow down with a cowl, but what cowl wi[illegible] air from passing down it if sucked into th[illegible] by some force greater than the wind's actio[illegible] the cowl? If a fire is burning at the foo[illegible] tall chimney, the outlet of which is highe[illegible] the cowl, how can we prevent the fire [illegible] drawing its air supply from this convenie[illegible] cowl-protected inlet in the roof? As I ha[illegible] before, no cowl of itself may stop it. But [illegible] ventilating light scheme the difficulty i[illegible]

inted by the insertion in the cowl of a disc of
: or similar material, which is perfectly flat, and
's upon the end of the shaft, which, being care-
.y and squarely cut to meet it, makes a sound
it, airtight against any *external* air. The
: is threaded on a central pin, and is attached
no other manner, nor can it become rigid in
· way. Now the theory of this valve is bound
with that of the non-conducting lining; each
to some extent, imperfect without the other;
together they utilise that power which has, I
ık, never before been brought to bear on ven-
ting lights. This is the *conservation of heat*
eady mentioned. You are aware of the rule
ich makes hot air ascend—it is simply pushed
by the weight of cooler air descending, and
impulsive force of heated air is according to
degree to which it varies from air at normal
perature. We will instance a column of air
square by 20ft. high. This weighs about
144lb. What keeps this column of air from
ng will be the fact that neighbouring columns
ir the same dimensions are at the same tem-
ature. We will consider such a column as
ıg contained by a non-conducting shaft, 20ft.
g by 1ft. square. This we will suppose to be
jected to heat; but before applying the heat
close the top of the column with a flat plate
ıo weight, and on this place shot of known
ghts. When the heat is started the air in
column expands, and at first the surplus con-
s flow out at the unclosed end. The hottest
rises up the shaft to the top under the plate,
a pressure is exerted upon this plate equal to
difference in weight between the heated air
he column and a similarly sized column of
eated air. If our column of heated air is at
, then we have doubled its volume, halved
lensity, and obtained an upward pressure of
its weight, that being the difference between
heated column and an imaginary cool column.
f the plate we speak of is weighted to ·7 of a
nd, still the upward force will lift it, and, *nota*
, if a down-draught presses upon the plate to
extent *less* than the upward impulse, the plate
still be lifted up and the exit take place in
: of down-draught. This plate is repre-
ed in our ventilating scheme by the exit
e, the disc. We will suppose an external
pression of the atmosphere to exist, which
s this disc valve tightly on its seat; then the
ed products from the ventilating light fill the
right up to the valve, and, losing very little
by the absorption of the shaft, continue to
ıotter until the upward pressure exceeds that
ne down pressure, forces it back, and makes
Should the down pressure be severe, as
as it does not exceed the ·8 or ·9 per square
the conservation of heat soon reaching
or 500° will cause an exit to be forced.
: a down-pull on a ventilating outlet may be
come, and, with these inventions, ventilating
may be made in places which have been
acticable hitherto. But we have another
ant in this matter: the exit valve spoken of
aced in one of the powerful Sugg cowls
e mentioned, so that not only does the light
e extraction, but the cowl does its work when
ght is going. Its working is such that the
passing of a wind across it will cause
ction, and keep the valve balanced in the
nt, until a cessation in the upward current
the consequent threatening of a down-
ght will restore it to its seat. But you will
vith reason that such a cowl extractor with a
y wind will cause undue ventilation. By a
e mechanical arrangement the exit valve is
posed situations made to act as a regulator,
ı allows free outlet so long as the fixed out-
: not exceeded, but, under a violent extrac-
closes the orifice in proportion to the
ased suction, keeping the output regular
unaltered. For about two years some
nese have been in work, and have never
l; nor can any traces of wear or dis-
be perceived. Apparently they are as
as ever, although exposed to the full
of ventilating lights (in one case within 3ft.
e flames). As regards the efficiency of this
n of gas ventilation, I examined recently
tallation at the Grosvenor Museum, Chester,
ce unventilated lights had been removed.
is case the committee, sitting under the pre-
cy of the Duke of Westminster, and the
nanship of Sir Horatio Lloyd, has carried
xtended experiments in the rooms of the
nical Education Department, and authorised
ɔnorary secretary, Mr. J. R. Griffiths, of
er, to give a certificate to the effect that the temperature of the rooms did not rise one degree with the rooms full of students and after hours of work. The lighting was characterised as perfect. The question of air inlets must be answered; but I should hesitate to advocate the arrangement of a greater area of inlet than outlet, unless circumstances precluded the ample distribution of the inlet orifices. The plan I recommended lately is, I think, as good as any. In this case the grounds of the skirting were cut through, and the board itself perforated in an ornamental manner at intervals. The floor boards should be cut short, so as to allow free way from between the joists to the space behind the skirting. In the outer wall of the room air bricks are set, and from each a light zinc shaft runs to the centre of the floor between the joists, terminating at an open end. Thus the suction above is exercised equally all round the room, and the incoming air is fairly well modified in temperature. In an existing building the inlets must depend upon the circumstances, but distribution must be the point considered. With control of the light you have control of the inlets, and the whole matter is regulatable. There appears to be no one of our conditions with which ventilation by gas-lighting does not comply if carried out as I have described. It is cheap (?) if put in when the building is going up, the light itself being the only item of cost worth considering. It can be fixed almost anywhere, and can be made to work well. At one stroke the lighting and ventilation is accomplished, and you have the best of both. There is no advantage claimed for electricity which is not possessed by gas so used—cleanliness, coolness, and efficiency—and comparison does not exist upon point of cost. Every small house could be fitted whilst building with the shafting, leaving the tenant to select his light, and this he could buy at as little cost as a gaselier. Finished houses can be ventilated without pulling them to pieces, and the parts of the system which would be considered fixtures and unremovable are the cheapest parts of the installation. The light may be in powers from 16 to 2,000 candles, and will last for years. There is no danger in their use, and gas explosions from sliding and other imperfect chandeliers are abolished. You only pay for gas (less than you would for a less scientific system), and you get ventilation into the bargain. You have an ever-ready mechanical force which will at any time educt vitiated air from the room by the simple means of a lighted match and a turned tap. Ventilation by gas is emphatically the method for large or small buildings or shops, and for all situations where persons have a regard for their health, for their eyesight, for the cleanly appearance of their ceilings and walls, and for their pockets.

NOTES ON TERRACOTTA.*

ECONOMY.

THE use of terracotta may be made a source of considerable economy, depending entirely upon the design. If the general details be elaborate and largely varied, necessitating the making of many models and moulds by the manufacturer, the work is likely to cost nearly as much as if it were in stone. But if the general features be repetitive a considerable saving may be effected. This can be generally done in string-courses, labels, arches, pateræ, balusters, and similar details. In original work (*i.e.*, work not moulded or pressed) very little saving is likely to accrue, for the manufacturer, in pricing the work, has to make a provision for the possibility of failure from the time it leaves the hands of the modeller until its output from the kiln. None but those who have spent a portion of their lives in terracotta works can form an adequate idea of the loss and waste of material from misadventure, especially in the kiln. In all terracotta works are to be found a large and varied assortment of ornamental stock patterns, chiefly in brick sizes, by the use of which in any design a saving may be made. This is largely practised in the vicinities of terracotta-producing districts, where the stock patterns may often be seen worked into villa residences with good taste and pleasing effect.

DRAUGHTSMAN.

In large works doing much business several draughtsmen are employed, each one having his own particular jobs to look after, the work in connection with which, from the receipt of the architect's drawings until the consignment of the material to its ultimate destination, is, or should be, under his immediate supervision. He should be thoroughly practical in stonework and brickwork, familiar with bonding and jointing, an accurate knowledge of which will furnish good results in his work. Solid geometry—especially that part of it which applies to penetrations and developments—is invaluable in determining intersections and true forms. His first duty is to make ½in. scale drawings of the various elevations to be treated (this being the most suitable scale for the purpose). On these drawings all the work should be "jointed up," that is to say, all the joints throughout the elevations should be expressed or shown; and, in addition, the various blocks into which the work is divided can be indicated, alphabetically or numerically, as best suggests itself. This drawing should be kept for the exclusive use of the draughtsman, affording him a ready means of vindicating his mode of working, showing the progress of the work in hand as well as enabling him to readily trace the material in the progress of manufacture by means of the numerals or letters written thereon. Before putting any of the work in hand, a tracing of the ½in. scale drawing should be submitted to the architect for his approval of the proposed jointing and various other treatments. If this were done in all cases much future trouble might be obviated. Upon the return of the ½in. scale tracing with the architect's amendments (if any) indicated thereon in red ink, a tracing should be taken from it as a key plan for the use of the builder's foreman; and in any correspondence taking place between the manufacturer and the builder relative to this matter, the numerals or letters of the key plan should be carefully quoted.

Separate full-size clay drawings so-called should now be made for each block differing in form from the other blocks. The dimensions for these are taken from the "shrinkage rule," which is so graduated that a piece of terracotta in the clay state measuring 2ft. by the "shrinkage rule" will, when burnt, measure 2ft. by the ordinary rule. The amount of shrinkage allowed is generally one-thirteenth of the whole. But as all clays have not a uniform shrinkage, each works has its own "shrinkage rule." The common form of rule in use is 26in. long, one side being divided into twenty-four equal parts, representing inches, and which is called the clay-rule; and the other side into twenty-four ordinary inches, with a two-inch blank at one end. This side is called the ordinary rule, and, as implied by its name, is ordinary measure. Rules of this kind bearing the ordinary and the clay measure should not be used; they are productive of many mistakes in the setting out of the work, which are sometimes not discovered until the material is burnt and delivered upon the building. A separate rule in each case will be found best. Models and moulds are now made from the clay drawings, truthfully representing the intended work, but one-thirteenth larger to allow for shrinkage. This done, subject to the approval of the draughtsman, piece-moulds in plaster of Paris are taken off the whole work in the same way as for under-cut ornament in plastering, and are used in a similar manner for the reproduction of the forms in clay. Vexatious delays are now looked upon as inseparable from the use of terracotta. These should not occur under a proper system of management when the architect's drawings are delivered at an early stage of the building works, and the manufacture of the material is at once put in hand. To provide against wreckage in the kiln, or damage in one of many ways, a few extra blocks or pieces should be made in excess of the actual number required, the cost of moulding or pressing a few extra blocks being very trifling indeed. In building works of any magnitude a sum should be provided in the bill of quantities to defray the wages and expenses of a really practical man to be selected by the architect or the builder, and located on the terracotta works to watch the exclusive interest of the building represented by him and urge forward the work. As an additional means of tracing the material each contract should be assigned a distinctive letter of the alphabet, and all work for that contract while in the plastic state impressed or stamped with its representative letter, or the initials of the name of the building for which it is intended. The draughtsman, when ordering his work of the presser and finisher, should do so by furnishing him with a printed docket on which he has previously

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sketched the block or blocks to be made, the quantity required; the name of job, draughtsman, and date should also be marked thereon, the draughtsman keeping a counterfoil of each docket supplied.

HOT-WATER ENGINEERING.—XVIII.

Supply of Hot Water for Baths and Domestic Purposes.

taps (concluded) and other appliances.

THERE has been recently introduced a new tap, which promises well and certainly seems practical, but the greatest hesitation must always be felt in speaking of these appliances, favourably or otherwise, until they have been in use a little time under ordinary conditions. This tap is Sir William Thomson's patent, and Fig. 59 illustrates in section its parts. This is a screw-down tap with a metal valve, A, which screws down upon a metal seating, B, and no rubber or composition material is used to make the joint here, as is usually the case with screw-down taps. The valve and the seating being both of metal, it follows that some provision must be made to keep them both true and of exactly level surface; otherwise there would, of course, be a leakage in a very short time. Metal valves and seatings have been tried many times, but with so little success that practically everyone now uses a yielding material on the valve (closing upon a metal seat), so that any little inequality upon the surface of the seat is made up, and no leakage occurs until the material on the valve, rubber, leather, or composition is worn out and requires renewing. This applies to taps which have the valve portion closing direct and dead upon the seating. With the tap now being treated the difficulty is overcome in an ingenious way: the valve and seat, instead of closing abruptly together, first meet with little pressure

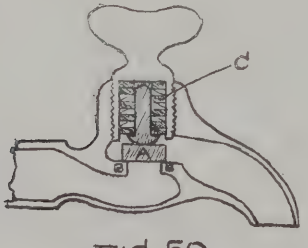


Fig. 59.

due to the valve being beneath the spiral spring C, then as the handle is screwed down still farther the spring becomes more compressed, and ultimately cannot permit of the handle being screwed further. After the valve and seat first meet about two more turns can be given to the handle, and these two turns cause the valve to rotate upon the seat. This is the vital point in the tap, the makers claiming that as the two surfaces are thus equally ground together each time the tap is opened or closed, they cannot become irregular or unsound, and until the two parts are actually worn away no leakage can very well occur. This sounds well, and one or two good engineers in London have spoken well of the tap; but the writer fears that the deposited matter from hard waters will be found seriously injurious. It is this hard matter that has, and still does, injure all other taps that have two metal surfaces working one against the other. It is this substance washed through the pipes in the form of grit that causes leakages with ordinary plug cocks. Very many users of baths wish for a shower attachment to be provided that a shower bath may be had when desired. This under the old arrangement was an awkward and clumsy contrivance, consisting of a circular tank or container suspended over the head of the bath, that is, in the most convenient position for those who intended using it, and this after being filled with water was, by a trigger arrangement, discharged over the person standing beneath. The bottom of this contrivance was perforated with fine holes, so that the discharge assumed the nature of a shower correctly, but here its good features ended. The particular objection to this reservoir was the trouble or inability to ascertain the temperature of its contents. For a cold shower it was very good; but if a tepid or warm shower was required, it was necessary to ascertain the heat of the water, otherwise the results might be unpleasant or even dangerous.

The more modern form of shower attachment is as Figs. 60 and 61. This consists of a board of some polished wood, with a metal arm and rose projecting from it, and the taps for regulating the supply of water are conveniently within

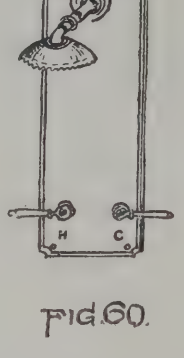


Fig. 60.

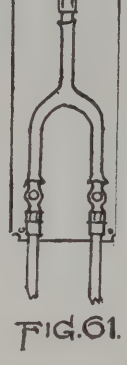


Fig. 61.

reach. The second figure shows the connections which are effected at the back of the board, out of sight.

It will be seen that the hot and cold service pipes are brought from the nearest points (they are usually branches from the bath services) and connected to the taps behind the board; from the taps they are continued a little way up the board and then joined, as shown, just before the connection is effected with the shower arm.



Fig. 62.

This makes the most convenient and sightly arrangement possible. The temperature of the water can be regulated to the greatest nicety, or, what is oftentimes particularly sought for, the shower can be commenced warm and gradually reduced in temperature until quite cold. The duration of the shower is also quite at the bather's pleasure. Of course, this attachment necessitates the bath being against a wall either at one side or end, but this is nearly always the case; a bath in the centre of the room is unusual.

If desired, a shampooing union (with rubber

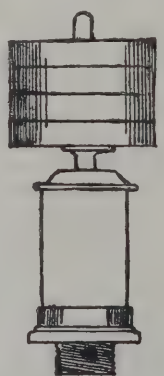


Fig. 63.

tube and rose) can be very easily attached to the same board. This is a very useful appliance when bathing children; or it will afford a ready means of rinsing out the bath after it has been used. These more modern shower appliances are kept by almost all the plumbers' fittings makers.

safety valves.

The variety of safety valves is at p limited to four, not including the fusible These valves are not used at all largely, n what they are desirable appliances, but fo reason neither the range maker or hot-wa gineer shows any interest in them. A valve, if properly used, would without fa vent a boiler explosion, whatever might cause, and as boiler explosions are usua tended with loss of life, it is to be wonde that the range user is not more anxious. ably the rarity of these accidents has som to do with it.

When a safety valve is fitted there is vailing idea that it remains an element of for ever; but this notion is very wrong, considerable number of existing valves permit the boilers to explode before they o This would happen when a safety valve ha fixed several years and never been used tended to. In this case the seating of the whatever it might be composed of, wo stuck fast by age and non-use, and no force would move it. Safety valves, parti those with metal seatings, should be clean tested occasionally; when the boiler is cleaned is a good time, for the testing b cannot very well be done unless the wo is at liberty to draw off the water after The reasoh for this is that when the v lifted or opened and water issues (an ind that it is in good order), upon releasing joint most likely will not make itself again owing to some accumulation or falling in between the surfaces. When valve is attended to or tested it usually that the seatings must be cleaned before become watertight again.

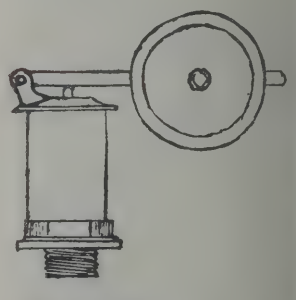


Fig. 64.

The position for a safety valve is in the but the boilers are usually so placed that cannot be directly screwed into them, short length of pipe has to be used. The objection to this provided the pipe is o size and is taken from the top of the boil the pipe was taken from a low position boiler its entrance would become choke "fur," supposing hard water was used writer has always been in favour of bring pipe through the range covings, so th valve is nearly over the fire; in this positi water issuing from the valve (should a dan feature cause it to open) would extingu fire. By this means the valve not only the boiler, but by putting out the fire p all further risks.

There are one or two firms who reco placing the safety valve on the cylinder, apparatus is on the cylinder system. It presumed that they have good reason fo although it is not obvious. In the first cylinder never bursts, and it is the boile that is accountable for what fatalitie hitherto occurred. Now, as an accident due to something that occurs between the and cylinder (stop-cocks in primary flo return, for instance), placing the valve cylinder would be useless. Of course, if t sible cause of a burst occurred somewh above the cylinder there would be every hood of the valve on the cylinder savi boiler; but as it is the boiler only that bu naturally follows that the boiler is the place to attach the valve to.

Occasionally an accident will occur to a der without injury to the boiler; but let it explained that this would not be a case of ing. Cylinders collapse, which is just t posite to what occurs to boilers; and to p

llapse an *inlet* valve would be required to ve the pressure from without.

he collapse of a cylinder might occur in this : If by any means a cylinder was exhausted ater, emptied while the fire was alight and e was water in the boiler, this water would furiously and drive volumes of steam into through the cylinder. Now, to exhaust a ptacle of air, few methods are better than in- ing steam into it, consequently, while this ion is going on the cylinder is practically ex- sted of air, but filled with steam. If at this nent cold water flowed at all rapidly into the nder the boiling would instantly cease and steam would be condensed, creating a uum. This would cause the pressure of the ernal atmosphere to exert all its force to sh the cylinder, which it would effectually do, his amounts to 15lb. pressure to every square h. A cylinder acted upon in this way be- nes crumpled and crushed in like cardboard.

e safety valve mostly used is the spring de- ption, as Fig. 62. This is shown in section : s the outer casing, having an external thread bottom, usually ¾in., and a screw cap B at . Inside at the bottom is a seating C, as wn, and from this seating a pin extends up through the centre of the screw cap at top. e force that keeps the seating tightly in posi- n is furnished by a spiral spring extending m top to bottom inside, around the centre . This spring, as will be seen, is compressed re or less by screwing down or unscrewing top cap. By means of this cap the valve be regulated according to the pressure of er that exists. The supposed weak point in s valve is the spring, which perishes in course time, but which can be supplied new at any ue for a few pence. It is the neatest valve we re, occupying the least room.

The valve which has the next greatest use is "dead weight," as Fig. 63. This has a ing, inner seating, and centre pin almost ctly like the last, but no spring. The pres- e to keep the seating sound is furnished in s case by weights placed upon the centre pin, ich extends up some inches above the top of valve to receive them. These weights are cular pieces of iron about 3in. wide and ½in. ck ; four or five are used according to the ssure of water that exists normally. This ve is not credited with having any weak nt. It is a very safe valve if attended to iodically, but it is not so sightly as the last.

Another valve is the lever form, as Fig. 64 ; s is a very safe valve, but little used owing to room it occupies. It is, of course, familiar everyone who has examined steam boilers. e body of this valve is similar to the last, but required pressure upon the pin of the valve rnished by the weighted lever as shown.

An ingenious valve is as Fig. 65. This is wn in section, and practically consists of a gth of pipe with a diaphragm in it. This phragm consists of a thin sheet of copper perly secured, and safety is insured by having diaphragm sufficiently thin to become ctured should an unsafe pressure be exerted. ordering this valve the normal pressure or id of water has to be stated, and the makers en supply a diaphragm suited to bear this, but y little more. This valve would not require ention or cleaning.

The last safety appliance to be mentioned is "fusible" plug. This consists of a rather all circular brass frame, which is screwed in- e the boiler. This frame contains a disc of an oy which melts at a temperature a little above at of boiling water, and when melted leaves a ar aperture through the brass frame for the cape of steam or water, whichever should hap- n to be ejected first, as the boiler relieves elf. Many people think that a fusible plug only suited for instances where a boiler may come empty, but it has to be explained that it just as good a safety valve when the apparatus full of water and likely to have an explosion m some other cause.

As just mentioned, the fusible disc is made of alloy (bismuth, &c.) which melts at a tem- rature but little higher than boiling water, y at 300°. Now, supposing some stoppage curs and a great pressure begins to be exerted, e temperature of the water will rise cor- spondingly, for the heat of water is only ited to 212° when it is subject to atmospheric ssure. If we heat water in a closed re- ptacle or apparatus (like a high-pressure heat- apparatus) we can get very high tempera- tures, even up to 500°, but the pressure when this heat is attained is enormous. When the water became 300°, sufficient to melt the fusible plug, the pressure would be 65lb. to the square

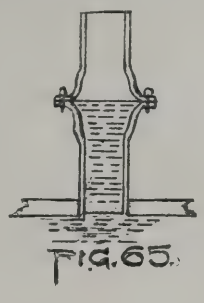


Fig. 65.

inch. This would not be sufficient to burst the boiler, so that safety would be insured.

It is doubtful if fusible plugs are reliable in hard-water districts, for should the disc get a coating of fur, which is a very poor conductor of heat, it is possible, in fact very probable, that the plug would be melted when no danger existed. The next paper will deal with sources of danger, faults, and remedies.

SANITARY SPECIALITIES.

MANY new and special features for sanitary purposes are to be found in the illustrated catalogues issued by Adams & Co., engineers and sanitary specialists, of York, whose offices are in Little Queen-street, Westminster, with branches at Manchester and Glasgow. The ventilating column is an appliance worthy the notice of sanitary authorities and engineers. It has a hollow cast-iron base with flange that can be fixed to concrete or stone, with a wrought-iron tube or column which acts as a ventilator. The base can be attached to a bend leading to sewer through which the noxious gases can escape. Within it, just above the pipe from sewer, one of Adams' patent sewer-gas disinfecting and deodorising apparatus can be fixed, which allows the current of air freedom, and at the same time deodorises the gas. The column can be used as a simple ventilator or have a cowl fixed at the top. A bracket gas lamp can also be attached to the column at the side. This combination of lamp and ventilator is exceedingly useful and inexpensive. It can be made to any size and form. Adams' patent automatic flushing siphon is a useful appliance for sewage or clean water. It can be started by a drop feed, is exceedingly simple and accessible in its parts, and as a flushing apparatus we can recommend it. It discharges instantly and quickly. For flushing house drains of various sizes this automatic siphon is well adapted, as it can be obtained of various sizes of outlet. Sections showing it fitted in flushing chamber are illustrated. The manhole cover or ventilator fitted with disinfecting apparatus for roads is simple, and the receptacle for liquid disinfectant, with asbestos wire hood dipping into it, is easily adjusted and got at. It is supplied to the Board of Works and other authorities. Other forms of it are shown. Adams' patent revolving disc penstock is a very simple and useful kind of apparatus ; the lift is by chain and ring, and the operation of raising very easy. The revolving door is raised by a chain passing round its grooved edge. Another kind is raised by a rack and worm. A very ingenious automatic flushing door, from 12ft. diameter upwards, of oval or square form, is illustrated on page 16 ; and we have also various improved forms of flushing valves. Adams and Co.'s egg-shaped tide flaps secure all the requirements of easy working and accurately fitted flaps for sewer outlets. Manhole and air-tight covers and gullies are also shown.

Another catalogue furnishes a variety of patented appliances. We must particularly draw attention to Adams' patent trough and flushing closet, used largely for schools, barracks, and workshops. The excreta is held in partial suspension, and is automatically flushed out at intervals by a patent flush tank fixed over one end of the range. The section of trough is well shaped to prevent splashing or back soiling, and the prices affixed show this to be one of the cleanest and cheapest forms of closet where the seats are numerous. The patent automatic flushing latrine is used where the open trough is undesirable. This form of latrine consists of a number of separate straight pans, oval in form, connected together, with division walls between. They are flushed out at intervals automatically. Several testimonials from surveyors and architects are appended of the working of this latrine. Wrought and cast iron flush tanks for cleaning drains with little fall, which are set in motion by drop to drop supply ; Adams and Co.'s disconnecting chamber, flushing gully, and improved siphon cisterns, are worth attention ; as also the numerous and excellent wash-out and other types of closet, hoppers, glazed-ware urinals, lavatories, and other patented appliances. Prices are affixed to each pattern.

CHIPS.

The pinnacles of Tenterden steeple, the erection of which is traditionally held to have been the cause of the Goodwin Sands, are undergoing reconstruction. Mr. Ewan Christian is the architect, and the contract is being carried out by Mr. Nunn, a local builder, who has just completed the rebuilding of the principal or staircase pinnacle.

A convalescent home for fever patients is about to be built in Pump-lane, Meanwood, near Leeds. The site has an area of 4½ acres, and at present will be made for 30 children and 10 adults. Mr. W. H. Thorp, of Leeds, is the architect, and the outlay on the buildings just commenced will be £8,500.

The Bishop of Lincoln reopened yesterday (Thursday) Frampton Church, South Lincolnshire, which for the last two years has been undergoing restoration.

At a special meeting of the Ilkley Local Board held on Friday evening, a scheme was considered having for its object the carrying out of a number of much-needed improvements, and the erection of town's offices, &c., the whole involving an estimated expenditure of £10,000, The scheme includes the laying out, fencing, and planting the Rhyddings as a public pleasure ground, widening and improving certain of the public roads, the building of a certain new depot and board offices, stabling, cottages, house for superintendent, a fire-brigade station, public slaughterhouses, stores, shedding, workshop, &c. The scheme was discussed at some length, and was adopted, subject to the sanction of the Local Government Board being obtained to the loan of £10,000.

Thomas Kennedy, builder, Plymouth, having filed a goods and cash account as ordered, was at Stonehouse Bankruptcy Court on Friday allowed to pass his examination.

The Wesleyan chapel at Fiskerton will be reopened next week, having been reseated, reflored, and redecorated. The works were carried out by Messrs. Horton Brothers, of Lincoln.

The school board for Wednesfield have instructed Mr. G. H. Stanger, of Wolverhampton, to prepare plans for enlarging the schools at Moseley village.

Mrs. Dutton, the wife of the chairman of the South-Western Railway Company, attended at Eastleigh on Saturday, and opened the new Railway Workmen's Institue, a building erected by the company for the use of their workmen, many hundreds of whom have just come to reside at that place, through the removal of the company's carriage building works from Nine Elms.

The new institute and reading-room at Willaston, Cheshire, was opened last week. It has been built from designs by Colonel David Walker, architect, of Liverpool, Mr. W. Pritchard, of Little Neston, being the contractor. The style adopted is English Domestic work of the 16th century, carried out in red stone for the ground-floor story, and half-timbered work above.

A Constitutional club at Eastleigh, Hants, was opened on Tuesday week. It is built of local red bricks with Bath-stone dressings, and has a ground-floor hall, reading-room, and refreshment bar, and on the first floor a billiard-room. Mr. Stanfield C. Greenwood, of Southampton, is the architect, and Messrs. Crook and Son, of Northam, near Southampton, were the builders.

On Wednesday week the Winsford Co-operative Society opened a new river warehouse on the Weaver. The building has been erected by Messrs. A. and H. Hulse, from designs by Mr. Cooper, architect, Winsford, and the work was superintended by Mr. J. Wilson as foreman.

Mr. Frederic Payne Watson, a former inhabitant of Leamington, died early last week at the age of 82. He had been known in Leamington for 60 years, having settled here early in the thirties as an architect, and subsequently was for some years town surveyor. He took a great interest in all connected with the advancement and welfare of the town. For some years, owing to failing health, he had resided at Bournemouth, where he died.

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ILLUSTRATIONS.

THE GRAND HOTEL, NEWCASTLE-ON-TYNE.—A RIVERSIDE PAVILION NEAR HENLEY.—COTTAGES AT CADOXTON, BARRY DOCK.—OFFICES AT BRECON.—SOUTH PORCH, OUNDLE PARISH CHURCH.—ROTHWELL CHURCH, NORTHANTS.—A CHIMNEYPIECE BY THE LATE W. EDEN NESFIELD.—ROMAN CATHOLIC CHAPEL, HOLLINWOOD CEMETERY.—WAREHOUSE IN MITRE-STREET, ALDGATE.

Our Illustrations.

GRAND HOTEL AND ASSEMBLY ROOMS, BARRAS BRIDGE, NEWCASTLE.

The grand hotel and assembly rooms are designed distinct and complete in themselves, a large open yard intervening, and the only connection between the blocks being for service. The block towards Barras Bridge was originally intended for business and residential flats, and was adapted for hotel use as the work proceeded. The plan given is of the principal or first floor, the ground floor being let off for shops, excepting spacious entrance, staircase, buffet, smoking and sitting room. In all, the accommodation provided is fifteen public or reception rooms and fifty bedrooms, in addition to extensive kitchens and cellarage. The assembly-rooms are designed on two floors, the accommodation on each being a large ballroom, with reception and supper room contiguous. The cloakrooms in duplicate are on the ground-floor, the entrances and staircase being arranged to allow the ground and first-floor suites of rooms to be let separately or together. There are billiard and card rooms, together with ample kitchen and serving-room accommodation over supper-room, having lift communication, and, in addition, caretaker's apartments. The girders carrying the assembly-room floors are laid on special egg-shaped india-rubber cushions to afford sufficient "spring" when used for dancing. The buildings are warmed throughout with steam, the ventilation outlets being assisted by steam pipes taken to outcasts. The rooms are lighted with the electric light. The whole of the works have been carried out, from the designs and under the superintendence of Messrs. Lamb, Armstrong, and Knowles, architects, Newcastle-on-Tyne, by Messrs. Middlemiss Bros., contractors.

A RIVERSIDE PAVILION NEAR HENLEY.

This little building on the Thames, from the designs of Messrs. Elphicke and Howell, in local bricks and tiles, is clearly shown by the plate which we print from the architects' drawings to-day. A feature is made of a reading-room, with a spacious ingle nook fireplace in the central portion, affording a pleasurable refuge in wet weather, and, besides, it forms a useful adjunct to the tea-room by the side. Ample retiring conveniences for boating parties are provided. Mr. T. Dixon is the owner of the place.

COTTAGES, CADOXTON.

This row of cottages is about to be erected for a London syndicate, who will erect in the neighbourhood about 500 houses, the demand for which still continues. The contract price is £175 per house, the materials are local rubble stone external walls, partly slated roofs. The houses will be considerably above the road level.

OFFICES AT BRECON.

On the same plate is a view of a block of offices at Brecon. This building is an old cottage on the site, altered and enlarged for use as offices. The materials are rubble walling, half timber, rough cast, and red tiled roof. The architect is Mr. W. L. Griffith, Newport, Mon.

OUNDLE PARISH CHURCH.—THE SOUTH PORCH.

The parish church of Oundle is a fine example of a large 13th-century church, with insertions and additions of later periods. The Early English nave arcade is very fine. The aisle windows and clerestory, with the transepts and the chancel, are Decorated, and the spire and south porch are Perpendicular. This latter was added at the end of the 15th century, and in detail is peculiarly rich. The vaulting inside is a very good example of the period. John Begg.

ROTHWELL CHURCH, NORTHAMPTONSHIRE.

Situated in the midst of the quaint little town of Rothwell, which in itself contains such a wealth of good work, is this interesting church, though in a sadly dilapidated condition and much needing repair. Every period of Gothic is here represented, but, as is often the case, the "Third Pointed" work is by far the best—*vide* the fine east window of the sketch, which harmonises so wonderfully well with the Early work in which it has been set. The plan of the corner pinnacles of the east end is peculiar, from the way in which they are set with relation to the study of 13th-century buttresses below. The mouldings of this window are very full and rich in contour, and partake somewhat of the character of 14th-century mouldings. The sketch shows how in the 15th century the choir wall-head was raised and the east gable flattened—the old wall-head corbel-table and the carved bosses which once stopped the gable-moulding being still visible.

John Begg.

CHIMNEYPIECE BY THE LATE W. EDEN NESFIELD, ARCHITECT.

In further illustration of the works of the late Mr. W. Eden Nesfield, architect, we give reproductions of three chimneypieces and a sideboard. The chimneypieces are at Cloverley Hall, Shropshire, the mansion being fully described in former numbers. No. 1 is in the drawing-room, and is executed in statuary and Sienna marbles. No. 2 is the library chimneypiece, and is executed in Portland stone. No. 3 is the dining-room chimneypiece, which is carved in wainscot oak and Derbyshire russet marble, the chief interest of which lies in the central panel, which illustrates a numerous procession of servants bearing the various creature comforts to the dining-room. The cook, represented by the first figure, is supposed to have completed his cuisine duties, and is in the act of taking a pinch of snuff, and having a little banter with the others. The sideboard is one of various other works, both decorative and constructional, which Mr. Nesfield carried out for Mr. Henry Vallance, then of Farnham Royal. Previous illustrations of work at Cloverley Hall were given in our pages for July 17th this year, and a view of the house itself will be found in our issue for June 3rd, 1881.

ROMAN CATHOLIC CHAPEL, HOLLINWOOD CEMETERY.

This cemetery, belonging to the Oldham Corporation, contains three mortuary chapels, registrar's house, gardener's cottage, stabling, &c. The buildings, erected at a total cost of £7,760, are faced externally with Brighouse parpoints and Yorkshire stone dressings, with green Westmoreland slates for the roofs. The whole of the inside joiners' work is of pitch-pine. The chapels together form quite a group, each with its tower and spire, while the registrar's house, with its clock tower and the gardener's cottage, adjoin the entrance gates. The contractors were Messrs. Squire, Dunkerley, and Co., of Werneth, Oldham. Mr. Fredk. W. Dixon, of Oldham, was the architect. The drawing shows the Roman Catholic Chapel.

WAREHOUSE IN MITRE-STREET, E.C.

The premises are situated at the corner of Mitre-street and King-street, Aldgate, built for Messrs. Phillip Phillips and Co., cokernut and fruit merchants, of this locality. Mr. M. E. Collins is the architect. The premises were erected by Messrs. C. W. Ward and Co., of No. 10, Minories, and are constructed of red brick and Portland stone, the ground-floor piers and arches being Portland and red Mansfield in alternate ban The keystones, main entrance, and panels decorated with groups of fruit and foli symbolical of the trade. The peculiarity of t warehouse is that it has no shop front, the wh elevation being left open to permit of continu trade being carried on all round the premi with people in the street, there being count arranged to project on to the thoroughfare. T basement is exceptionally deep to permit of n being shot into the same, and the upper flo are well arranged, with the windows 6ft. ab the floor level, so as to give wall space ri round the apartment for piling up nuts, arrangi and sorting same. The building is roofed with an asphalte flat, and on top is an erecti kept back so as not to show in the street, specia constructed for carrying on the bleaching of nu This portion of the building is carefully seve from the rest, and rendered entirely safe fr fire, and being situate at such a height from surrounding property, the neighbours do not su any ill-effects from the various fumes aris from the bleaching. The premises are fitted w broad double fruit ladders and no stairs. powerful hydraulic elevator passes through building from top to bottom, and there are some hydraulic cranes, &c.

CHIPS.

To the many memorials which adorn the wall the north and south aisles of the choir of Y Minster, another has been added by Mrs. Luden memory of her late husband. The tablet, whic of marble, is of a simple description. The work been executed from designs by Messrs. Bodley Garner, London.

The town council of Stafford have decided instruct Mr. E. Pritchard, C.E., of Birmingham advise them and prepare a report as to a gen sewerage scheme for the district.

The city council of Bristol, on Tuesday, adop a report by a committee recommending that accordance with the private Act procured last sion they had instructed Mr. Francis Fox, C.E. prepare a plan for the erection of a fixed bridg substitution for the drawbridge, and for cover over the stream between the stone bridge and drawbridge. They now submitted Mr. Fox's for the works, the estimated cost being £8,065 the new bridge, and £15,493 for covering in river.

A new board school on the Coppice at Oldh to be known as the Wernett School, is in co of erection from plans by Mr. G. E. T. Lawren of London. It is to be one story in height and the central-hall principle, having classrooms op ing out of an assembly room; 1,010 school pl are provided, and the cost will be £13,500.

New designs are being prepared by Mes Burlison and Grylls, of London, for the prop memorial window in the De Trafford Chapel Manchester Cathedral, to the late Dean Oak When these designs are completed and approved work will be proceeded with at once.

The Chinese, an exchange paper informs employ an admirable putty, which they call sch liao, and which serves also as a strong cem suitable for uniting gypsum, marble, porcelain stone. The schio-liao is made by mixing thorou fifty-four parts, by weight, of pulverised sla lime, six parts powdered alum, and forty p fresh blood, until they form a paste. When n thinner, the same mixture can be used as a wa proof paint, and is much employed by the Chi for painting their houses, and for coating the in of barrels in which oil is to be transported.

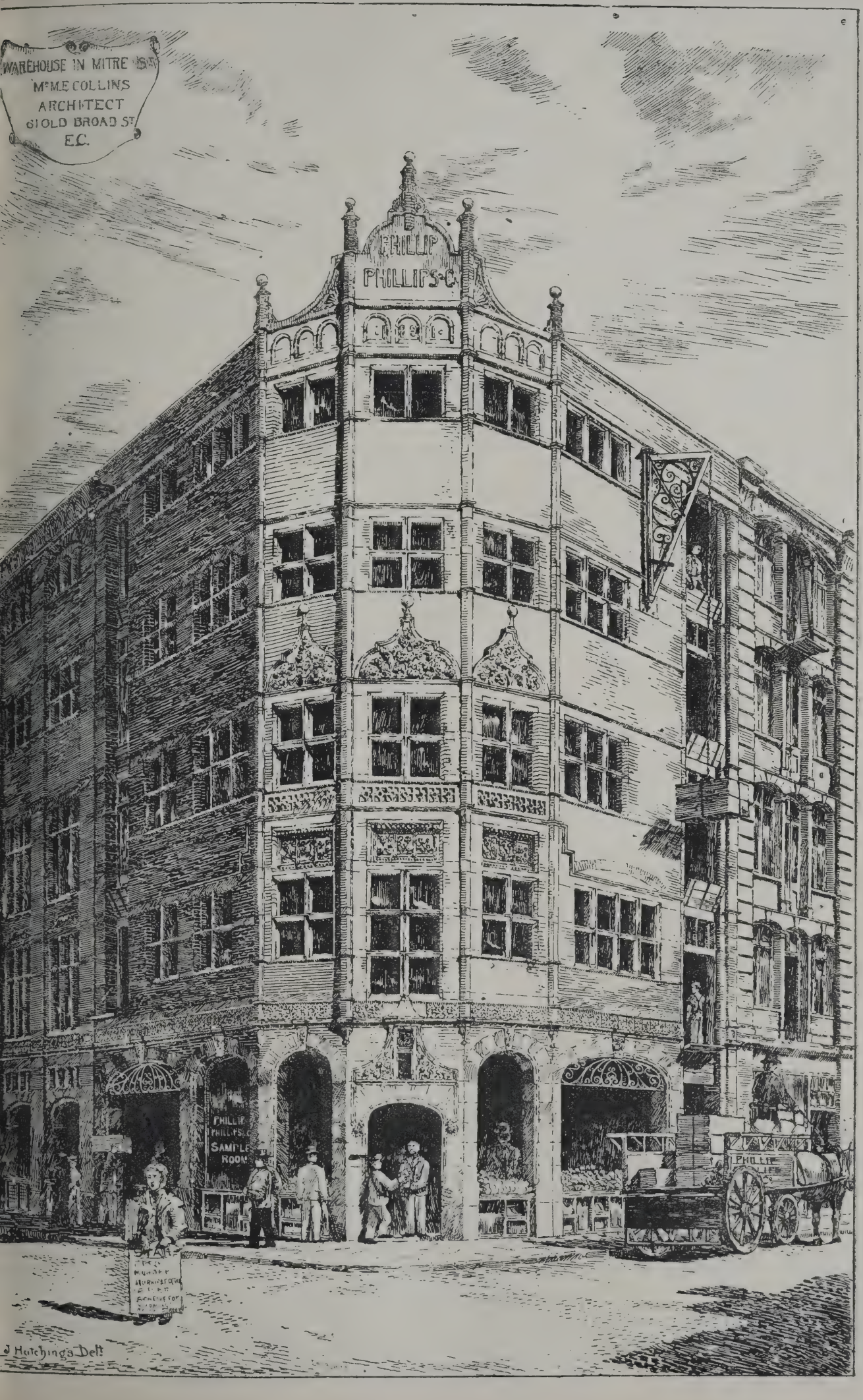
On Saturday afternoon Lord Derby unveiled statue of John Bright, which has been erecte Albert-square, Manchester. The commission been executed by Mr. A. Bruce Joy, a pup Foley. The statue, which, like that at Birm ham, is in Sicilian marble, represents Mr. Brig the age of about sixty. The figure is 10ft. 6in height, and stands upon a pedestal of grey gra 12ft. high. The pedestal bears the simple appropriate inscription—"John Bright, 1811—1 'Be just and fear not.'" The statue is ere between that of Bishop Fraser and the Al Monument.

The death is announced of Mr. C. S. Wilkin of Sydney, the government geologist for New S Wales. Born in Northamptonshire eight-and-f years since, he entered the service of the geolog survey for the colony in 1852, and had held surveyorship since 1874.

The dock commissioners of Leith decided, Friday, to construct a dry dock, 285ft. by 7 immediately to the north of the Prince of W dry dock, the estimated cost being £25,000. It referred to the works committee to prepare submit plans.



Roman Catholic Chapel ≡ HOLLINWOOD CEMETERY


WAREHOUSE IN MITRE ST
Mr ME COLLINS
ARCHITECT
61 OLD BROAD ST
E.C.
PHILLIP
PHILLIPS & C
PHILLIP
PHILLIPS & C
SAMPLE
ROOM
PHILLIP
J Hutchings Delt

WAYSIDE NOTES.

HE vestry of St. Saviour, Southwark, is about to undertake an extensive work. e few nights ago the vestry considered a rt from a special committee in favour of steps g taken for securing the erection of a new n-hall, the adoption of the Free Libraries and the Baths and Washhouses Act. A in Lavington-street has been selected, and estimated cost of buildings for the three itutions placed at £60,000. The report was pted by the vestry, and it therefore seems able that we shall shortly have an announce- t that the commissioners are prepared to receive ls, &c., as usual. The situation of the parish t. Saviour is such as should conduce to the ess of the library and the baths and washhouses. large number of poor people resident in the hbourhood will insure good annual reports the baths and washhouses, and the library reading rooms will be largely patronised by a al grade or two above the lowest, of which the sh has also a large proportion. The vestry fortunate in the matter of site. More than parish in London has adopted the hs and Washhouses Act, only to find impossible to procure the ground upon ch to erect the necessary buildings. The petition, if competition there be, will be ood one, and an interesting one, if there be intention to make one building of the three itutions. More probably the vestry, or its missioners, will have three distinct buildings, at Bermondsey, where we find town-hall, ls and washhouses, and free library, all in a —the latter, I noticed recently, now approach- completion.

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am glad that someone has at last spoken *in re* Glenburn Hydropathic Establishment Com- tion. As nothing was forthcoming from rieved competitors, we shall conclude that the agraph in the Glasgow evening paper did not rectly describe the facts of the case. The ir was mysterious altogether, and if Mr. tson could give us the history of the com- tion, and the actual occurrences, we should glad that everything had been cleared up. It ms pretty clear that the invited competitors— whose ill-treatment we heard through the agraph in question—had only imaginary vances, or they would have raised their voice ore now.

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he member for the borough of Paisley has just en the sum of £4,000 for the purchase of und, to keep open the view of the Paisley vn Hall. This is a true index of the way crowd together nowadays. Even buildings er from want of elbow-room. Mr. Dunn's ard for architectural effect is worthy of our em. Nevertheless, even as an architect, we that the £4,000 might have served much re practical ends, and been of more benefit to manity than in the shape of open lands for the e of a view of a building.

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t seems probable that Birmingham will go to -Wales for its water, as before pointed out. town council considered a report from the er committee at its Tuesday's meeting, which ort was unanimously adopted. Sir Thomas rtineau, who submitted the report to the ncil, stated that the estimate for works suffi- t to deliver twenty-six millions of gallons y, including the maintenance of existing ks for ten years, was £3,621,000, and three itional instalments to meet the probable ease in population, would bring the total to rly six millions. Seeing that in the year 0 the scheme will prove remunerative, and t the present supply of water to Birmingham only calculated to last till 1920, the town ncil would appear to have decided wisely. proposed sources of the new supply are rivers Elan and Claerwen. If the reader consult the map, he will see that the mingham people, if the present scheme is ried out, are going to do something in the of water supply that should stir up Londoners possess themselves of a soul a little above nking Thames and Lea waters. Despite the arkable statement of Mr. Beachcroft, L.C.C., Tuesday's council, that "there was no water he world so wholesome, so pure, and so good hat which was taken from the Thames," the remains that we turn our sewage into the r and drink of the same waters. A comforting ection, truly!

London water is just now the topic of the day. Let us make the most of the attention for the moment directed to the subject; for it may be taken as a certainty that for weal or woe something will shortly be attempted either in the way of buying-up the old companies on Sir Thomas Farrer's principle, or in providing a new supply. Let us grasp the importance of the subject. We are ourselves, physiologists and chemists say, for the most part formed of water. Drinks of every kind are little else but pure water with, so far as bulk is concerned, insignificant added ingredients; victuals anything more toothsome than dry toast have water as a more or less extensive component part. Realising even these facts, and ignoring the other innumerable uses for which pure water is required, we should see the importance of this question of water supply, and be prepared to advocate only such schemes for its advancement as shall be real improvements, and not merely semi-political movements, such as I make bold to say is the present endeavour of the London County Council; for what good is to come of the purchase of existing companies? It will not provide new supplies, it will not purify existing sources, and it will not cheapen water. Unless the scheme for purchase includes and goes hand-in hand with clearly-conceived improvment I fail to see its advantages. The true solution of the question of London water will be found to be inseparable from a vastly-increased supply. More—much more—water is required, and from a pure source. Then water will be cheap; it will be uncontaminated; it will be used without stint by the poor. Stimulus will be given to the building of public baths when these institutions, at present paying large sums annually for the water they use, obtain water at a nominal rate. We shall then, too, have water to "play with," as Kingsley said years ago in a magazine article. It will gush out joyously in fountains, where now it is jealously guarded in pipes, and sold like milk or beer at per gallon. But we do not want fountains of clarified sewage water. We shall not be content with any mere enlargement of present supplies. Our future water supply must be absolutely pure—a crystal river flowing from some irreproachable fountain-head.

Respecting the proposed Egyptian irrigations, I read that the appointed keeper of old Philæ located himself in a chamber in the temple, and through lighting fires therein has cracked stones and let in the roof! The building might as well be drowned out by the irrigation works, as slowly destroyed by fire by its "keeper." Touching vandalism on the banks of the Nile, I also read that a party of tourists have done irreparable damage in one old building—the Great Pyramid, if I mistake not—by letting off Bengal lights! Further, a Russian youth with more money than veneration for antiquity has been smoking the cartoon-paintings on the walls of old temples with tallow-candles, especially delighting in defacing the heads! Furthermore—to cross the Mediterranean—we are told that the "guardians" of the Athenian Acropolis have been lately dismissed for damaging the monuments committed to their charge, and selling the fragments to visitors.

I hear that a movement is on foot to pull down the old lych-gate of Bexley Church, Kent, and to put up a new gate of a new design. This will be a piece of vandalism. As an old resident at Bexley, I know well enough that the proposed innovation is not only wholly uncalled for, but that the placing of a pretentious modern gate in lieu of the old one will destroy the general harmony. An elaborate lych-gate is, to my way of thinking, a questionable taste, and I can imagine the discordant effect of a new well-oiled, sleek, much-becarved oaken gate against the background of the plain, unpretentious church with its unassuming flint walls, and that quaint old extinguisher-like spire of silvery oak shingles for which Bexley Church is, or should be, justly famous. I understand that those who compass the destruction of the old lych-gate urge that it is too low. It is strange that the fathers of old Bexley did not find this out before, seeing that the gate has been in its present position time out of mind. I trust that Bexley is not becoming a stiffed-necked generation. A slight genuflexion or bending of the head might get over the difficulty, and be at the worst a gentle reminder of the desirability of humility and meekness. As to the proposal to remove the old lych-gate, I trust that the vicar and churchwardens will think twice before so doing, for it is neither necessary to the glory of God nor the comfort and convenience of man. GOTH.

CHIPS.

The Duc d'Aumale has promised to present to the Condé Museum, a set of forty miniatures, painted by Jean Fouquet, for the "Horæ" of Etienne Chevalier, which the Duke recently purchased for £12,000.

A committee has been formed at Wimbledon for the purpose of taking steps to raise funds for a memorial of the late Sir Joseph Bazalgette, the engineer of the Metropolitan main drainage, and of the Thames Embankment.

The tender of Mr. Macfarlane has been accepted at £27,476 for the erection of baths and washhouses in Hornsey-road for the vestry of Islington. The architect is Mr. A. H. Tiltman, of Torrington-square, whose design was selected in competition in June last, Mr. Charles Barry being the referee.

The parochial hall and Sunday-schools adjoining St. Leonard's Church, Bootle, erected at a cost of £3,000, were opened on Friday by the Bishop of Sodor and Man. The buildings are from the designs of Mr. George Bradbury, diocesan surveyor. The sole contractor for the work has been Mr. James Holme, of Seaforth, and the clerk of works was Mr. J. Speakman.

The congress of the Bristol and Gloucestershire Archæological Society was held at Gloucester on Thursday in last week, and after the business meeting the members visited the cathedral, where they were received by Dean Spence, who suggested that a meeting should be arranged next year to endeavour to elucidate the period of erection of the Early parts of the cathedral—the crypt and eastern end. Professor Freeman suggested one date and the late Gambier Parry and the Rev. W. Bazeley another, seventy years separating these conjectures.

Three stained-glass windows have been placed in the parish church of Frimley, Surrey. The one on the north side represents David and Solomon, those on the south side respectively have as subjects Ezekiel and Jeremiah and Joshua and Samuel. The work has been carried out by Messrs. Powell and Sons, Whitefriars Glass Works.

The Dean and Chapter of Canterbury will accept the bequest of the late Dr. Beaney, Melbourne, of £1,000 for repairs to the cathedral, the condition being that they permit the erection in the nave of a memorial of the testator.

On Rosary Sunday another stained-glass window was unveiled at the west end of the R.C. Church of the Sacred Heart at Holloway. The subject is the fifteen mysteries of the Rosary. The design for the window was from the studio of Mr. T. Grew, who also filled four windows in the south aisle and three over the high altar in the same church with stained glass.

The foundation-stone was laid last week of a church in West Fen, near March, dedicated to St. Mary Magdalene. The architect of the church is Mr. Walter L. Spiers, of London; and the builders Messrs. Porter and Sons, of Southery. The cost will be about £1,400.

A special meeting of the Police Commission of Dunfermline was recently held to consider a report of Messrs. Leslie and Reid, Edinburgh, upon the drainage system of the city. The engineers consider that it is necessary to have two separate systems, keeping one set of pipes entirely for storm water, and the other set of pipes for sewage, and they propose that the present sewage pipes should be used as far as possible for storm water, and new pipes provided for sewage. The cost of the scheme is estimated at £14,000. The report was discussed at great length, but a decision was postponed.

The late Mark Hopkins, a New York millionaire, earned vast wealth, for which his gardener's son is now at legal strife with his wife's second husband. Mr. Edward F. Searles, the second husband, is in possession. He was a decorative artist in a New York furnishing house, and ingratiated himself with the widow, who had a taste for house-building, which she was enabled to indulge by her enormous income, and gratify any whim, even to the construction of a fairy palace.

The Victoria Hotel in Lichfield-street, Wolverhampton, opposite to the entrance to the London and North-Western Railway drive, was formally opened on Wednesday week. The vestibule and hall are decorated with stained glass, and on the ground floor there have been provided coffee-room, bar, commercial room, smoke-room, billiard-room, and manager's and other apartments; while on the first floor are a number of splendidly-furnished suites of sitting and bedrooms, with large assembly-room; and on the floors above are about sixty bedrooms.

AN AMERICAN CHIMNEY.

AN instructive paper, read by Mr. John T. Henthorn, M.Am.C.E., before the American Society of Civil Engineers, and given in the *Transactions*, furnishes some particulars of the recently built chimney for the Narragansett Electric Lighting Company, Providence, R.I., designed by Remington and Henthorn. The shaft forms part of a large central station. The foundation for the structure, which is 260ft. in height, consists of piling and concrete. A space of 44ft. square was excavated 5ft. 6in. below high-water, and the sides protected by sheet piling, 16ft. long. Spruce piles, 50ft. long, were driven, spaced 30in. from centre to centre. These were sawn off level 5ft. below, and a bed of concrete, 6ft. 9in. deep, was laid, which rested on the soil 6in. below the heads of piles, as well as on the latter, composed of 1 part of Norton's hydraulic cement, 2 parts of sand, and 3 parts of coarse gravel and broken stone. Upon this mass the footings were laid, 36ft. square, to a height of 3ft. 2in., and from this the base of the chimney, 28ft. 6in. square, was commenced. The chimney was preserved vertical by a fixed centre mark, from which all measurements and plumbing were taken, and at each 20ft. of height the centre of axis was re-established. The base consists of three walls, an outer wall 28in. thick, an intermediate octagonal wall 12in. thick, and a circular core wall 16in. thick. The outer and intermediate walls are connected by pilasters 12in. thick, forming a kind of tie. The core-wall, 16in. thick, which gives 14ft. diameter of flue, is carried plumb above the top of last set-off to 78ft. high, after which it is reduced from 16in. to 12in. in thickness, after which it is carried up to 193ft., and is then again reduced to 8in., and is thus carried up to 219ft. 9in. This core-wall was executed in lime-mortar, slaked from three to six months before using. The outer wall of rectangular section is carried up 28ft., where at each of the corners cut granite blocks convert the square to the octagon, which it then retains throughout the rest of the height. The outer wall, with the intermediate wall and pilasters, up to 38ft., are laid with cement mortar one to two, except the outside course of outer wall, which is laid in soapstone-finish mortar of a dark-red colour. From this level to the commencement of the head, 223ft., the outer wall is laid with mortar consisting of two parts of lime and one of cement. The angles of the octagon shaft are executed in moulded brick and project as slight quoins. The head of chimney shows a series of plain set-offs, or projections, covered by a cast-iron cap. This was in 25 pieces, and bolted together. The inner-core wall is finished at top also by a cast-iron cap. The details and sections of the upper part show a brick opening or space for iron ladder, with a hinged flap of iron in the splay of capping next the centre outlet. The shaft has a batter, and at 83ft. in height the outer and intermediate walls unite, and form one wall. In the construction there were laid edgewise at each 20ft. in height, wrought-iron tie-bars, 4in. by ½in., with their ends bolted together, forming an octagon girdle. Other details are given in Mr. Henthorn's paper. It may be mentioned that the chimney was built from the inside platform, without any outside staging. Within the 14ft. chimney flue an elevator was fitted, and all the materials were hoisted by it. As an example of tall chimney construction, there is much that is worth notice; the projecting angle quoins, the bold brickwork head, and the arrangement of core are points deserving of attention.

ARCHITECTS' REGISTRATION IN VICTORIA.

AN adjourned meeting of architects who were not members of either the Victorian Institute or the Architectural and Engineering Association, was held at the Institute rooms in Melbourne on August 31st, to finally consider the amended draft Bill for the registration of practitioners in architecture. We reported in our issue of the 2nd inst. (p. 460) the previous meeting convened for the same purpose. At the adjourned conference, Mr. G. C. Inskip took the chair, and called on Mr. A. W. Craven, M.L.A., to read the report of the five gentlemen appointed at the previous meeting to examine the Bill clause by clause. This showed that all the suggestions made at the last meeting had been carefully considered. The principal amendment made consisted in the clause relating to engineers. Whilst the committee had been careful not to interfere with an engineer carrying out all works connected with engineering, they had endeavoured to prevent his encroaching upon the work of an architect.

After some discussion, the report was unanimously adopted, and the names of the five architects who had prepared it—Messrs. Craven, De Geris, A. E. Duguid, J. Little, and Marsden—were formally added to the committee having charge of the conduct of the Bill through the Victorian Parliament. The draft, as amended, is supported by the prominent professional journals of the colony, including the *Australasian Builder and Contractor's News*, which remarks, in a leading article on the Bill:—

"The rapid progress lately made with the Victorian Registration of Architects' Bill must be very gratifying to all who, like ourselves, are strong advocates of the principle of architectural registration. The representatives appointed by the various sections of the Melbourne profession so nearly coincided with each other as to the various clauses of the Bill, that they were able at one sitting to give it the final touches of revision, and it will be seen from the report which appears in another column, that the 'outside' practitioners have confirmed the few alterations which their representatives had agreed to. The skeleton Bill will now be handed to the Parliamentary draftsman, in order that it may be amplified and otherwise rendered suitable for presentation to Parliament; but, seeing that the current session is so far spent, and that the Assembly is so blocked with other business, we should perhaps be too sanguine to expect the Bill to be fairly launched upon the Parliamentary waters until next year."

The *Building and Engineering Journal of Australia*, the organ of the Victorian Institute, says:—

"The new Council of the Royal Victorian Institute of Architects is to be congratulated heartily upon the broader view it is taking of things architectural, and the largely attended meeting held on Thursday, the 13th inst., is undoubtedly a healthy sign. It must have been patent to all who attended the meeting that had it been called earlier much heart-burning would have been prevented, and the Bill for the Registration of Practitioners in Architecture would have been at the present time far nearer being an accomplished fact. The meeting may be said to have been unanimous on the vote taken as to the general principles of the Bill, only one hand being held up in dissent. The draft outline, since we published it on the 20th of September of last year, has been materially altered, and is now a thoroughly broad and liberal measure, and as it stands at present will have our hearty support, and, we have no doubt, that of every qualified practitioner in Victoria. At the same time we are thoroughly in accord with the remarks made at the meeting by Mr. A. E. Duguid, who echoed in perhaps somewhat different words the opinions expressed by us upon several occasions. We support *this* Bill, not that we have in any way altered our views as regards its necessity, but as it now stands we consider that with one exception, and this, we think, rather an important one, it will do no harm, even if it do no good. Our view of this exception may, however, be a mistaken one, and we allude to the almost inevitable annihilation of the Royal Victorian Institute of Architects, for its power for good will, we fear, cease as soon as the Registration Bill becomes an accomplished fact, and the lever, instead of being worked by the Institute, as at present, will be worked by the General Council of Architectural Education, and as this will be by its constitution a semi-governmental body, red tapeism and the attendant evils of all Government departments will be rampant, and the outcome will be the degeneration of the Royal Victorian Institute into a very second-rate club. . . . . The draft outline as altered we feel sure will commend itself to every member of the profession, whether of the Institute, Association, or outside practitioner, who feels that such a measure is for the benefit of the profession. We have our opinion upon this matter, as already stated, and consider that a real live institute, such as the Royal Victorian Institute is rapidly becoming, would entirely supersede the necessity for such a measure; but as a large majority of the profession appear to be in favour of it, we shall in future do our best to help them to gain it, from the conviction that if it does not fulfil the expectation of its advocates, it can at all events do no harm to the profession. We have now obtained what we have been throughout advocates of—a full discussion and a decided expression of opinion on this matter, and we again congratulate the Council of the Institute upon their action."

ORNAMENTAL WOODS.

MANY kinds of ornamental wood are now to be had suitable for joinery and cabinet-making. The principal thing is selection. For veneering or panels the root end is the most ornamental. Even mahogany varies; there is the plain Honduras kind used for ordinary purposes; the "watered," "mottled," "bird's-eye," and "festooned" varieties, depending upon the vein structure. The Mexican mahogany is less ornamental than the Cuba variety, which is wavy on its figure and takes a high polish, or the St. Domingo variety, also of deep colour, and well figured. These highly ornamental mahoganies are generally imported in very small logs 3ft. to 10ft. long, and seldom more than 8in. to 10in. square. Doors and other framing made of Honduras m the stiles and rails, and of Spanish in the pan are effective. Jarrah, or Australian mahoga is very similar in colour, hard and durable, wh a wavy grain, and promises to become a us substitute, though its importation is not v large. For roof timbers and framing, ja offers some advantages, but it is said to be li to shrinkage.

One of the many decorative woods for wh New South Wales is noted is the tulip-wo known as the Horpullia pendula. It has advantage of being close-grained, hard, and figured, the colours varying from black to yell For decorative joinery the tulip wood is in m esteem, especially for panels, cabinet wo and turnery. Blackwood, which resem American walnut, is a valuable ornamen wood, tough in fibre and well figured, and tainly a desirable substitute for mahogany in more figured varieties. It is easily bent steaming. For joinery, blackwood is exce ingly well suited, though somewhat costly. point should be remembered in selecting wood this class—namely, that the most beautiful figured specimens are to be found near the end, and for choice veneers the root stocks valued in the market. Notwithstanding this, butt end of the tree is often wasted.

THE DECORATIVE TREATMENT O NATURAL FOLIAGE.

A COURSE of Cantor lectures on this subj was delivered last spring at the Society f Arts by Mr. Hugh Stannus, F.R.I.B.A. In s introductory address, the lecturer dealt with e elements of decoration, showing that the cl f impelling motives causing the decorative tre ment of objects have been (*a*) the functional, t necessitated by the usage; (*b*) the æsthetic, t resulting from the instinct to please the e; and (*c*) the didactic motive, that arising fr the desire to record or to teach. The æsthe instinct of the early peoples was gratified by e forms of their weapons or tools, the patterns which they were decorated and the imitation f surrounding living objects, first of animals afterwards of vegetable forms. The selection f the elements of decoration were narrowed such things as were pleasing at first glance, further limited to such as were suitable in sha and size. According to their relative digni they might be classified as the human fo animal forms, natural foliage, artificial obje artificial foliage, and geometrical figures. Wh it was true that artificial foliage in Orie pattern-work was evolved from a much conv tionalised version of natural foliage, this was the case with Western architectural ornamentati The stock foliage of the ornamentist was evol in the West in connection with architecture, bu the East with textiles, and hence the prim elements of decoration were derived in the W from geometrical lines, such as the meander spiral, and in the East from natural flowers leaves—e.g., the pine and pomegranate. The method of treating these elements had been ferent. In the West the geometrical lines we enriched by the introduction of the details natural vegetation—thus gradually becom more naturalesque; but in the East the natu foliage was modified by the introduction geometrical arrangement, thus becoming m artificial. An approximation between the t treatments sometimes appeared, but the artifi and natural foliage were essentially differen design, and should be kept distinct in applicati Each of these two kinds of foliage had its o proper use. Artificial foliage was appropriate the enrichment of architecture; and natu foliage to those objects which were term "movables," including furniture, and m especially hangings and other applications of textile art. Architectural foliage was gover by severe rules of repetition, axiality, symmetry. Hence, artificial foliage, being regu in its structure, was more appropriate than (apparently) irregular growth of natural folia Natural foliage, on the other hand, exhibi an apparent playful freedom, the underly rules detected by the scientific botanist not be obvious to the casual observer. There had b attempts to introduce natural foliage into arc tecture, as, for example, in the Decora Gothic period, but the artificial elements had e proved too strong, and the two had never mix In architecture everything had three dimensio

hereas the close imitation of natural foliage ould be confined to objects of two dimensions i.e., to plane surfaces and figured materials. he lecturer explained that he did not propose to eat of "natural" foliage from the historical ndpoint, but merely as æsthetically applied. here were, broadly speaking, four methods of eating natural foliage—those at the art-pole of alism and conventionalism, and at the science- le of disguised artificialism and botanical alysis. The first two methods were artistic d legitimate; the others were inartistic and mis- ading. In the Botanical Analysis treatment of liage the student was taught to draw each ant with the stem straightened out, the leaves ttened out, and the flowers represented as in le-elevation or plan. The flowers were further lled in pieces, and the petals were flattened t; often, also, the stems and buds were cut rough and patterns were made with the ctions. Mr. Stannus condemned this method treating a scaffolding as if it were e building itself, sacrificing the variety appearance, the subtle curvature, and the reshortening of perspective to be observed in liage for the mere diagram created by its rmal rearrangement. This method was offici- ly encouraged by the Science and Art Depart- ent about twenty-five years ago, and Mr. F. dward Hulme's "Suggestions in Floral esign,"* and other books, showed it at its best. t that time Japanese work was not known, and ut for its revelations, the pattern-artist of to-day ight still be occupied in pinning leaves and owers against the wall. In a second method, uch practised in Germany, and which Mr. tannus termed the "Disguised Artificiality" reatment, the student was taught to sketch out hat he considered to be good curves and spirals, nd then either to bend a selected plant, so that s stem might coincide with them, regardless of s proper natural growth; or to deck out the pirals first drawn with the leaves and flowers of he selected plant. The first of these plans dis- egarded the fact that the branching out of a plant as as much part of its character and beauty as ere its flowers and leaves, and the second, hich was more often practised, was responsible or many of the laboured and uninteresting lesigns which were common. Indeed, if its reatment were universally followed, there would oon be an end to design with natural foliage. he quality of symmetry, which often under- ay these methods of treatment, was to e avoided whenever possible in natural oliage design. So injurious was the influence f symmetry in natural foliage design, that it night almost be a test question: Was the design ymmetrical? Balance of points, and not ymmetry, should be the aim of the designer. he mind soon tired of artificiality, both in urvature and symmetry, while the balanced lines f nature had a pleasant freshness and in- xhaustible variety. Passing on to consider ealism and conventionalism, Mr. Stannus showed hat the former, the attempt to render a re- roduction as like the reality as possible, had ever been the aim of the pictorial artist; while he latter, the effort to render much of the beauty of the original, with due regard to their capabilities, was the aim of the decorative artist. The approach from realism to conventionalism was made by a reduction in the number of points which were realistically treated; and also by a reduction in the degree of realism of colour, gradation, or shading, through all parts of the design.

The County Surveyor for Kent, Mr. Ruck, is not satisfied with the proposed increase of his salary by £200 which the Bridges and Roads Committee of the Kent County Council recommend, and has addressed a circular to the members, in which he asks that the sum may be made retrospective, and also that an annual sum of £50 towards the keep of a horse and trap may be granted him.

The general committee appointed for the restoration and permanent preservation of the monument at Wellington, Somerset, have decided that the repair of the obelisk shall be commenced at the earliest possible time next year, and that in the mean time any practicable work to prevent further dilapidation be carried out by the local committee. The amount required to carry out the proposed scheme in its entirety is about £1,200. Of this amount, £302 6s. 6d. has been promised and paid, while the lowest tender for simply repairing the present dilapidation is £468.

* Originally published in the BUILDING NEWS.

Building Intelligence.

CAMBRIDGE.—A new chapel for Queens' College was dedicated on Tuesday by the Bishop of Ely. It is erected on the north side of Walnut Tree-court, and stands parallel to the old chapel, which was built in the reign of Henry VI. The style of the new chapel is Perpendicular, and the fancy materials are thin bricks with Ancaster stone dressings for external work, and clunch for the interior. The external length is 107ft. and the width 34ft. The lofty east gable is a prominent feature of Queen's-lane with its large window of seven lights erected in memory of Dr. William Wright, Professor of Arabic. The sides of the chapel have traceried and mullioned windows of three lights, one in each bay. The whole effect aimed at is one of dignity of proportion rather than of any profusion of ornament, which is, indeed, used sparingly. Internally the chapel has a panelled and painted roof, the eastern part being enriched with gold and colour. The chapel is furnished with a rich screen of carved oak erected in memory of the nine members of the Poley family who were members of the college. The stalls are also of oak surmounted by an overhanging cove forming a continuous canopy. The reredos is of carved wood work, and has three pictures, scenes from the life of Our Lord worked up into it. This old altar-piece on three panels represents the Betrayal, the Resurrection, and Our Saviour's appearance to the Apostles after His Resurrection. It has been for years in the President's lodge, and is supposed to be the work of Martin Schoen; it formerly was in the chapel.

LONDON.—On Thursday, Oct. 8, the nave and aisles of St. Paul's Church, Harringay, N., were consecrated. The style is 13th-century Gothic, with nave arcade and clerestory, and lean-to aisles, built with red Bracknell bricks (facing internally as well as externally), Bath-stone arcades, strings, windows, and door dressings. The nave roof is of red fir, framed with curved and moulded principals, springing from stone caps and shafts, boarded inside to an arched shape, having no cross-ties visible; externally it is covered with Eureka grey slating. The nave is 97ft. 6in. long, and 29ft. 9in. wide; the total width of nave and aisles being 62ft. 3in.; the height to nave wall plate from floor is 37ft., and to apex of roof vault 52ft., and to ridge, 65ft. When the chancel is built, the total length of nave and chancel will be 130ft. The seats are of oak, and the altar is of cedar wood. The architect is Mr. G. M. Silley, of 17, Craven-street, Strand, W.C., and the builders are Messrs. Treasure and Son, of Shrewsbury and Noel-park, N.

LONDON COUNTY COUNCIL.—The members discussed on Tuesday the recommendations of a committee in respect to the water supply of the metropolis. Those recommendations were to the effect that the Council should not accept the decision of the Select Committee of the House of Commons, namely, that purchase of the existing undertakings should precede the establishment of an independent supply; that it would be desirable to acquire the undertakings of the existing companies if they could be obtained on reasonable terms; that the price to be given for them should depend on their true value, having regard to their ability to supply future wants; and that before any terms of purchase could be considered, the liabilities to capital expenditure for new or supplementary sources of supply in the immediate future should be authoritatively ascertained. The Council, by large majorities, eventually adopted all the recommendations. The Main Drainage Committee brought up a lengthy report on the subject of the pollution of the river Thames. It was decided, on the recommendation, that two additional sludge ships, of a type similar to the steamship *Bazalgette*, be obtained; and that, for the purpose of introducing the system of continuous treatment of the sewage at the Crossness outfall, the necessary weir walls be erected, and that this work be executed under Mr. Webster's contract for the precipitation works.

ST. ALBAN'S.—The work of refilling with statues the screen of the high altar of St. Alban's Cathedral, which has been in progress for nearly eight years, has just been completed. Messrs. Harry Hems and Sons, of Exeter, have carried it out for Mr. H. H. Gibbs, M.P., Sir A. W. Blomfield acting as consulting architect. The figure of our Lord in Majesty and those of the Twelve Apostles are of white alabaster, and the other 65 statuettes in niches are sculptured in yellow magnesia stone from Mansfield Woodhouse. Thirty-three of the figures are life-size, the others being smaller. An important section of the work is the treatment of the plain space that went to form the central cross, and for which—to designs made by Sir A. Blomfield—Mr. Gibbs obtained a faculty unopposed last year. It consists of erecting a plain cross, a *tilli* with letters I. N. R. I. on it, and a foot rest at the base of the cross all in yellow Mansfield stone. This is supported by a plain column of clunch stone, and over the head of the cross, and beneath a projecting canopy, a crown of glory; whilst at the ends of the arms of the cross are ministering angels, also in clunch stone, with wings extended, and having chalices in their hands. Illustrations from photographs of some of the statues will be found in our issues of Nov. 19, 1886, and June 28, 1889.

SHEFFIELD.—The Mayor of Sheffield laid on Thursday in last week the foundation stone of the new Municipal Buildings. They are being erected from the designs of Mr. E. W. Mountford, of Buckingham-street, Strand, which were selected in competition fifteen months since, and were illustrated in the BUILDING NEWS for June 27, 1890. The contractor is Mr. Edmund Gabbutt, of Liverpool, his tender being £83,945, exclusive of furnishing. The land cost £49,000. The style is Modern Renaissance, and English in character and detail. Great ornamentation has been avoided. What carving there is is in low relief, and confined almost entirely to the Pinstone-street front, while all the ornamentation is concentrated in masses. The tower at the corner of Pinstone and Surrey streets is 25ft. square externally, and will rise to a height of 175ft. The height of the Pinstone-street elevation has been raised 5ft. from design as selected. The first floor contains the Mayor's apartments and the rooms for the Town Clerk, and is approached by four staircases, one from each entrance. The three state rooms measure together 157ft. by 35ft., exclusive of bays, with a clear height of 23ft. These can all be thrown into one hall when required. A corridor, 11ft. wide, communicates with all these rooms. An open gallery, entered from the Mayor's reception room, is provided over the principal entrance. The council chamber, approached directly from the grand staircase, and occupying the centre of the site, is 64ft. by 39ft., and 30ft. in height. There are various committee and sub-committee rooms, which are placed in one corridor, close to the Town Clerk and council chamber. The Town Clerk's department is close to the council chamber and committee rooms. On the ground floor are the grand staircase and hall, the latter being 44ft. by 40ft., and 45ft. high. The Borough Accountant's department on the left. The Borough Surveyor's department is placed between the Surrey and Norfolk entrances. On the lower ground floor will be the Health Offices and Weights and Measures Offices. The second floor will contain the Sewerage and Rivers Offices. Since the acceptance of Mr. Mountford's design many minor alterations have been made. The walls are to be faced with stone from Mr. Turner's quarry at Stoke Hall, which has been tested in the Cutlers' Hall. Internally the stone used will be Coxbench. The walls of the central hall and grand staircase will be lined with polished Hopton Wood stone round the lower part, the upper part of the walls being of red and yellow Mansfield stone. The stairs themselves will be of Sicilian marble, and the balustrade of alabaster. The corridors generally will be lined with glazed tiles to a height of 5ft. from the floor. The floors throughout will be formed of concrete carried upon joists of British steel. The heating is to be carried out by Messrs. Longden and Co., of Sheffield. All the windows will be fitted with wrought-iron casements made by Messrs. Burt and Potts. The tower is to be surmounted by a bronze figure of Vulcan, 7ft. in height. The principal entrance has been considerably altered since the competition. Mr. J. R. Scales is the clerk of the works.

Mr. F. H. Henshaw, the well-known landscape artist, died on Sunday night at his residence, Green-lane, Small-heath, Birmingham, at the advanced age of 84. For over half a century he was a constant comtributor of landscape work to most of the principal exhibitions.

Engineering Notes.

The New Railway to London.—The Bill promoted by the Manchester, Sheffield, and Lincolnshire Railway Company to authorise the extension of their system to London will be again brought before Parliament in the coming session. In the main, the measure will be very much what it was when so unexpectedly rejected by the House of Commons Committee; but it has undergone important modifications in detail, and meets the objections raised against the scheme last session. These modifications chiefly affect the question of the proposed London terminus, the plans for which have been considerably altered and extended. Some deviations from the route originally laid down between Beighton Junction and Quainton-road are also provided for to meet the requirements of local authorities and landowners. Besides the St. John's Wood land—to the disturbance of which such strong objection was offered by artists and others resident in the locality—it is now sought to acquire the ground bounded by Grove-road, the north side of Church-street, Edgware-road, and St. John's Wood-road, and also an area extending from St. John's Wood-road to Marylebone-road at the corner of Allsopp-place.

Torquay.—A special meeting of the Torquay local board has been held for the purpose of receiving the report prepared by a committee appointed some time since to visit various watering-places in the country, and make inquiries respecting promenade piers. The report stated that the committee had visited Plymouth, Great Yarmouth, Lowestoft, Hastings, St. Leonard's, Eastbourne, Bournemouth, Brighton, and Scarborough, and inspected the promenade piers and their construction. All the piers were exposed to rougher weather than a similar structure would be in connection with the concrete groyne now in progress in Torquay. The committee had reasonable grounds for assuming that a promenade would yield, in connection with the new harbour works, a very fair income. They recommend that a pier be erected in connection with the present groyne—that such pier be constructed of iron screw piles and wood decking, so as to give an approach for a distance of 736ft., or thereabouts, 30ft. wide, and a height of not less than 9ft. above high water, the widened portion being placed on the Tor Abbey side of the structure; that the width of the angle, and for a distance of about 214ft., be similarly constructed not less than 100ft. for the purpose of enabling a suitable pavilion, at least 70ft. wide, with sheltered seats, to be erected thereon; that the outer length of the groyne to the end thereof be similarly widened out and at the same level to a width of 50ft., and provision made for the erection of a band-stand and shelters, and that landing-places be provided. The whole might be carried out for a total estimated outlay of £30,000, and the committee recommended steps being taken to apply to the Board of Trade for a provisional order to carry out the work. If thought fit, the scheme could be made a progressive one, and the work carried out in four sections, the respective cost of which would be £7,000, £7,000, £8,000, and £6,000. The surveyor presented plans, and explained the details of the proposed work. After some conversation, it was decided that the matter should be thoroughly discussed in committee, and brought before the ratepayers at a later period.

Alterations have been made to the vestry-hall and offices, Islington, embracing the ventilation, which is now carried out on the Boyle system, the extraction of the vitiated air being effected by the latest improved form of the self-acting air-pump ventilator.

On Sunday morning, the anniversary of the erection of the cathedral nave at Bristol, the Archbishop, who occupied the pulpit in the cathedral of that city, preached with special reference to the consecration of a place of worship. He reminded the congregation that much, both internally and externally, remained to be done in the nave. Externally it was a matter of constant observation, especially to strangers, that it was still quite unworthy of the city; and internally all felt that the cathedral needed much rearrangement now that they had a nave. They had never been able to develop properly the uses of that nave, because the chancel was intended to serve as both nave and choir at the same time. He hoped and trusted that these things might ere long be remedied.

COMPETITIONS.

Cross Deaf and Dumb School, Blackburn.—At the last meeting of the general committee of the proposed Deaf and Dumb School for North and North-East Lancashire, a report was presented by the sub-committee appointed to consider the financial relations between the general committee and the architects. The report stated that the sub-committee thought it a moot point whether they had the power—even if it were desirable, which they did not admit—to act upon the clause in the "Instructions to Architects," enabling them to dispense with the services of the architects upon payment of £25. With the object of arriving at a satisfactory arrangement, they deputed Mr. Willan to approach the architects, and a conference was held at Blackburn. As a result, Messrs. Sames and Green agreed to waive all claims upon the committee on the conditions that they be paid £75 in part recognition and in full discharge of their services, and for expenses out of pocket, that they be retained as the architects for the school, and that their remuneration for the building be at the rate of 5 per cent. for plans, &c., and 2½ per cent. for quantities. The sub-committee recommended the acceptance of this offer, thinking £75 a moderate sum when it was remembered that £72 was for expenses actually incurred by them. Mr. Willan moved a resolution embodying this recommendation. He pointed out that the advantages of the course were obvious—the avoidance of probable litigation; the removal of all friction between the committee and the architects; no more loss to the funds of the institution than would have happened had the committee had the power to dispense with the services of the architects for having failed to prove the correctness of their estimate; the minority who had succeeded in checking the scheme would be only too happy to co-operate with the majority in formulating a new scheme best suited to the requirements of the case; and the restoring of public confidence in the wisdom and capacity of the committee to perform the work in hand. The resolution was passed unanimously.

Oswestry.—Oswestry seems likely, from all accounts, to afford evidence for the truth of the adage about "too many cooks spoiling the broth." Last year, it will be remembered, the authorities of the town held a competition for the design of new municipal buildings, and Mr. T. M. Lockwood, F.R.I.B.A., of Chester, acted as their professional referee. The chosen architect proved to be Mr. H. A. Cheers, of Twickenham, whose design we illustrated in the Building News for January 23rd this year. In due course the working plans were prepared, and the Corporation obtained tenders for the work, when it was found that the cost would exceed by some £2,000 the stipulated outlay. Modifications were made by the architect, who in the end was paid for his plans, and the Town Council became possessed of a set of drawings without an architect. Who better than the referee for the post?—and so it came about that Mr. Lockwood was proposed as the best man to see the designs realised. Subsequently, however, as we learn from the report of the last Oswestry Town Council meeting, the Mayor (Mr. Wynne Corrie) declared it agreed to unanimously that Mr. Bolton, their own surveyor, be instructed to "carry out the work according to Mr. Cheers's competition plans (as modified), under the supervision of Mr. Lockwood as consulting architect." It was explained to those who called this arrangement in question that a good clerk of the works would be engaged to help the surveyor. What a happy family!

Mr. J. B. Morgan, M.S.A., architect, Llanelly, has been instructed by the Swansea U.D. Board to prepare plans of a school to accommodate 439 children to be erected at Goneinon.

A mace, made by Messrs. T. and J. Bragg, of Birmingham, has been presented to the recently formed corporation of Tunbridge Wells. It is in silver-gilt, and is nearly 4ft. in length.

About 30ft. of the city wall surrounding the Rougemont Castle, Exeter, and close behind the site of the castle lodge, under which, on its removal, human remains were recently discovered, fell down on Friday. Some time since another portion of the wall gave way and fell on the roof of the lodge, and in Friday's fall nearly the whole of the new wall was carried down with the old. It is supposed that the excavations in connection with the pulling down of the lodge weakened the foundations of the wall.

ARCHITECTURAL & ARCHÆOLOGICAL SOCIETIES.

A.A. Lyric Club.—The fourth season of th successful club, which now numbers over 1 members, will be inaugurated by a smoki concert at the Mona Hotel, Covent Garden, Friday, 23rd inst., commencing at 7.30, when Mr. A. C. Bulmer Booth, the president the club, has arranged a capital programm Members of the A.A. desirous of joining t Lyric should communicate with Mr. T. Moore Mr. J. D. Scott, hon. secs.

The Glasgow and West of Scotland Technical College.—The class in architecture Saturday afternoon began a series of visits measure and sketch in Glasgow Cathedral, whi are to continue during the present month, und the direction of the lecturer, Mr. Charl Gourlay, A.R.I.B.A. The opening lecture w delivered on the previous Monday evening, t subject being "Scotch Ecclesiastical Archite ture." The lecture was illustrated by a lar number of photographs, photo-lithographs, a sketches. The various classes at the college f building construction were also reopened la week.

The Sheffield Society of Architects a Surveyors.—The Sheffield Society of Architec and Surveyors inaugurated their winter sessi on Monday evening, the 12th inst., by a convers zione and concert held in the drawing-room the Cutlers' Hall. The president (Mr. C. Innocent) delivered his address, which w followed by an excellent musical programme, a the company had also the privilege of inspectin an interesting collection of pictures, photograph etchings, and other objects. Messrs. Longde and Co. lent a good collection of wrought ir and brass work of German 16th-century date, a modern work designed by the late J. Sedding. The president, in his address, said th present was an age when everybody seemed be concerned about drainage and matters affec ing the health of the people. Architects ough above all men, to be so concerned, and they h every reason to see that in all these things th best that could be done was done. They oug to be ready to co-operate with all public bodi and officials charged with the duty of caring f the public health, and they had a right to expe that their efforts in this direction would be r ciprocated in a friendly spirit. Mr. Innoce went on to remark that perhaps the weake point in the society was the small number students connected with it. He advised t younger members of the profession to join it f their own sakes and for mutual self-improv ment, and suggested that a class for taking o quantities during the winter months, and f outside surveying in the summer, might well organised to supplement the teaching whi architectural pupils were in the habit receiving.

CHIPS.

The Wesley Centennial chapel in Dilston-roa Newcastle-on-Tyne, was dedicated on the 8th in The chapel is Gothic in style, and has been bu from designs by Mr. J. W. Taylor, of Newcast It seats 900 persons, and cost £5,500. Mr. G. Mauchlen was the contractor, and Mr. R. Yates t clerk of works.

Kilmarnock town council reached, on Friday, t conclusion of the prolonged negotiations wi regard to the purchase of the Water Company undertaking.

New police buildings are about to be erected Risca from plans by Mr. William Tanner, of New port, county surveyor of Monmouthshire. T contractor is Mr. John Linton, of Newport, a the outlay will be about £3,000.

The town council of West Ham are building public hall and offices at Canning-town, at a co of £17,500. The plans have been prepared by t borough surveyor, Mr. Lewis Angell, and the co tractors are Messrs. Allen and Sons, of Kilburn.

The Corporation of Mossley having applied to th Local Government Board for powers to borro money for the purchase of the Whitehall estat which they intend converting into a town hall a pleasure grounds, Mr. S. J. Smith, C.E., Goverr ment Inspector, held an inquiry into the matter Friday. The town clerk said the house a grounds cost, twenty years ago, £100,000, and no they were offered to the corporation for £4,00 They intended borrowing £2,338 for the purposes a town hall, and £2,162 for public pleasure ground The grounds comprised 36,340yds. of land, fr from chief rent.

TO CORRESPONDENTS.

e do not hold ourselves responsible for the opinions of ır correspondents. All communications should be rawn up as briefly as possible, as there are many aimants upon the space allotted to correspondents.]

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ound volumes should be ordered early (price Twelve Shillings each), as only a limited number are done up. A few bound volumes of Vols. XL., XLI., XLVI., XLIX., L., LI., LIII., LIV., LVIII., LIX., and LX. may still be had, price Twelve Shillings; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

F. GOVER. (We suppose so. It is no fault of ours that Mr. Leaning's series on Prices has not been completed long since.)

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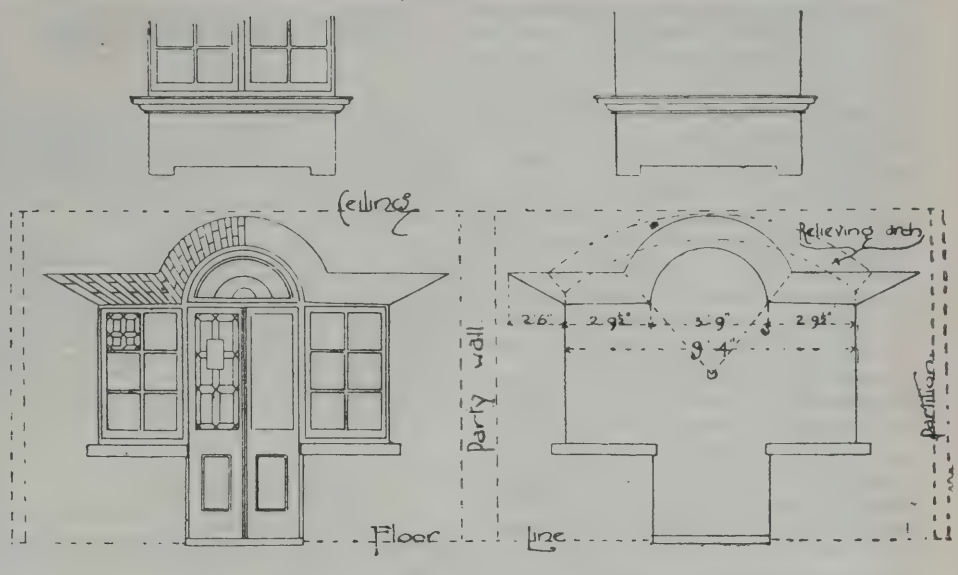
A NEW STYLE OF ARCHITECTURE.

To the Editor of the BUILDING NEWS.

SIR,—Of late the battle which has seemed rage about the mixed question of a New Style of Architecture" has, from a ariety of sources, undergone many mollifying ıfluences, with the result that little or nothing as been done, or even is being done, towards tablishing the position, or otherwise of adancing anything towards elucidating the tally organic principle of "Originality in rchitecture." We seem to feel generally that, om the exceptionally prolonged nature of the onflict, we have been disconcerted, and become an ominous extent lethargic on this fundamental rinciple of our faith. From many the question, of ourse, elicits no response, and to the multitude, ho operate with the "muck rake" in the irection of the luscious 5 per cent., no force manating from such an ideal sphere could hope produce the slightest sign of animation, uch less to confer upon the principle continuity existence. We settle down, whether conciously or unconsciously, into a state of coma, largely imbued with the conclusion that all attempts at originality are peculiarly the exclusive sphere of the genius, and that the genus "genius" is, so far as all authorities of the present day are concerned, a practical nonentity. Into this slough of despond we are rapidly sinking, and are stupefied and benumbed by the bewildering forces which threaten our annihilation within the fatal precincts of this vortex. Some, however, endeavour to shake off and to disengage themselves from this soul-destroying sense of despair, and to endeavour, with whatever degree of success, to still keep their eye fixed upon the lofty ideal set before them—in whatever manner the ideal may have become tarnished, and their mental vision obscured. With false lights and false prophets and false standards of architectural orthodoxy, induced by the tyrannical conventionalism of the day, the architectural pilgrim is confronted with many difficulties in pursuit of the ideal, and the hope by which he is spurred on is largely qualified by an admixture of doubt—that accursed canker—as to whether there be any power to confer originality or ideality whatever. In this very hopeless condition the rising generation is called upon to take up the question, to assume the mantle which falls from the vanishing form of its predecessor, and to declare its faith in the sustained vitality of architecture, or to retire from the battle wounded to the heart with the poisoned arrow of scepticism. This is our architectural position at the end of the 19th century. But very little introspection is exercised with regard to our position, either subjectively or objectively. Why is this? Because we are not taught to philosophise upon the grand purposes of architectural life, and, becoming acquainted with them, to attempt to fulfil them. But if our leaders of thought have indefeasibly concluded that genius exists not, and that originality, in so far as architecture is concerned, in the development of fresh forms of architectural expression as the expressive language of the emotions, is defunct, then by so *ex cathedra* a declaration all further argument is precluded. But we have yet to determine and set limits, if the signification will admit of such restrictions, to the precise meaning of the term "Originality in Architecture"—in other words, to know what we have to do, the exact position to be attained, and then to select the choicest and most appropriate means to accomplish it. There are, then, as a preliminary to the evolution of any new style of architecture, three questions of fundamental importance requiring to be formulated and answered, and failing the determination of which all other questioning is futile and inert—viz:

1. Is originality in architecture possible?
2. What is originality in architecture?
3. Given the possibility of originality in architecture and its determinate character, what are the forces and conditions essential to its attainment?—I am, &c., CHAS. R. GUY HALL.

13, St. Alban's-road, Kensington.



ARCHES.

SIR,—As there is a difference of opinion amongst your readers as to the reliance to be placed in these self-supporting arches, I inclose tracing from original drawing (which I hope you will kindly find space for in your valuable paper) of two arches built from my designs some five years ago. They are set in putty, and show to the present day neither flaw nor crack. They carry the 4½in. face of the brickwork, and a retiring arch carries the 9in. at the back. The centre the voussoirs are cut from is found by a line intersecting the intrados and extrados at the meeting of the springing of the semicircular portion. They have a rise of ⅝in. in the 2ft. 9½in., and are 12in. on the face. The openings are to the drawing-room, and lead out on to balcony at the back of a pair of large Queen Anne semi-detached houses. On the summit of the Brockley Park Estate, near Honor Oak Park Station, there are also other specimens of brickwork of an unusual character. I shall be happy to give any further information on the subject.—I am, &c., T. W. GARROOD.

416, Mansion House Chambers, E.C.

SCALE AND SKYLINE.

SIR,—Your interesting article in last week's BUILDING NEWS on "Scale and Skyline" is a little misleading in its references to the "Monster Hotel" next the Adelphi-terrace. In the comparison drawn between the hotel and the terrace, it is stated that "doors, windows, stories are all magnified as if they were intended for a Brobdingnagian race," and if your writer thought he really observed this, the "kind of paradox" in his mind is easily understood. No such large doors or windows exist in this building. For instance, the sash windows of the first floor are 4ft. 3in. by 8ft. 6in., and the corresponding windows in the Adelphi are 4ft. by 8ft. These dimensions are given from actual measurement, and not from observation.

The height of the first-floor rooms in the Adelphi, and this letter is being written in one of them, is 13ft., and the height of the first floor of the "Monster Hotel" is 13ft. 4in. So much for this second "increase of magnitude."

As to the overpowering of Cecil-street referred to, if your observer had gone round to the Strand front he would have seen the magistrates' notices as to the closing of both that and Salisbury-street for rebuilding, and as this rebuilding will be on a similar scale to the hotel, there will be no adjoining building to suffer by comparison except the Adelphi-terrace, and since they plastered the face of that it has little more architectural merit to care for than a terrace in Pimlico.—We are, &c.,

THE ARCHITECTS OF THE "MONSTER HOTEL."

9, John-street, Adelphi, October 12.

VANDALISM ON THE EMBANKMENT.

SIR,—There is no finer urban prospect—there is no nobler architectural panorama in Europe—than the line of magnificent buildings (seen best from the southern end of Waterloo-bridge) having Somerset House as the centre, and including the beautiful Gothic of Arundel House and of other buildings on the Duke of Norfolk's estate, the central offices of the London School Board, the Temple Library, Barry's characteristic structure in the Temple-gardens, Zion House, and the City of London Schools.

It is in the very heart of this grand view, unequalled in Paris or Vienna, and which even bears favourable comparison with the finest perspectives in Venice or Rome, that some barbarian (I know not who) is raising two monstrosities for some branch Government department, in the commonest brick, without the least appearance of ornament or design, and utterly devoid of architecture of any kind.

To my mind, the river-front of Somerset House, in its beautiful stone and stately style, presents one of the most dignified aspects of any building in London. That there should be additions to this historic edifice in ugly, common brick (above the skyline)—additions which bear no relation whatever to the style or proportions of its parent building—is an emphatic disgrace that we must not, and cannot, permit.

If such an eyesore be allowed to blot what is unquestionably the most magnificent architectural prospect in Northern Europe, alas! for all lovers of the beautiful—the fit. Let our cities be abandoned to the jerry-builder, and let architects cease to aspire. The many hundred thousand workmen who have laboured to raise upon the Thames Embankment buildings worthy of their manhood, have laboured in vain.—I am, &c.,

T. Mullett Ellis, A.R.I.B.A.

28, Essex-street, Strand, London, Oct. 14.

BRICK v. STONE HOUSES.

Sir,—Referring to letters in recent issues of your paper on the above subject, I do not see why a brick wall, if built with a cavity or hollow of two or three inches and well tied together with cast or wrought-iron clamps of some approved shape, should not be as good or better than solid stone walls 18in. or 20in. thick, very often filled up with poor mortar and rubbish that only serve to retain the moisture when once it gets in.

Another cause may be this—the stone throughs, which ought to be higher by an inch or so inside the wall, are sometimes carelessly left level or dipping down. When this happens I think the wet will follow, as I have noticed patches of black spots about where the throughs came.

I think this question is a most important one in the interests of the general public, and trust that some practical builder will give his opinion and enlighten—Yours, &c.,

Another Ignoramus.

CHIPS.

The total estimated cost of the Exhibition Buildings in Chicago, as now planned, is £1,084,286. These buildings will cover 100 acres, and the estimates do not include internal decoration and furnishing the buildings. Nearly all are to have sky-light roofs of iron and glass. Their walls will be covered with "staff," treated so as to represent marble, granite. In the smaller State buildings, construction generally will be of native woods and stones, so as to display the varied resources of the country in building materials.

An important railway project affecting Hull is to be revived. It is a proposal to tunnel or bridge over the River Humber, in order to open up a new and shorter route to London and the Midland counties. Sir E. Watkin has declared the project feasible. If successful, it will revolutionise the course of traffic in the Northern and Eastern counties.

Plans have been prepared for new organ-loft, vestries and heating-chamber at the parish church of Bishopton, Ferryhill, and the works will be proceeded with in the spring. The architects are Messrs. Clark and Moscrop, of Darlington.

A large church clock, with three dials and striking the hours and half-hours, has just been erected at Hayton, near Carlisle, by John Smith and Sons, Midland Clock Works, Derby.

The new board schools, North Ormsby, Middlesbrough, are being warmed and ventilated throughout by means of Shorland's patent Manchester Grates, the same being supplied by Mr. E. H. Shorland, of Manchester.

The new half-timbered range of stabling, &c., in connection with Beech Holme, Colwyn Bay, North Wales, for Mr. W. H. Cogswell, of Calcutta, has been designed by Mr. T. E. Lidiard James, architect, of Lonsdale Chambers, 27, Chancery-lane, London. The fittings are by Messrs. Musgrave and Co., the builder being Mr. J. Berth Jones, of Llanrwst.

During the past week the authorities of St. Pancras have removed the obstructive gate in Upper Woburn-place, and in a few days two great north and south thoroughfares will be open to traffic.

Intercommunication.

QUESTIONS.

[10646.]—**Damp.**—Will readers give me any hint as to the best means of getting rid of appearances of damp in walls, which only appears when gas is lighted. The house in which the damp appears has been built four years, the external walls are 14in., partition walls 4½in. The damp appears most round architraves in 4½in. walls on each side of fireplace in external walls. Any information will be gratefully received by—F. E. B. S.

[10647.]—**Scantlings of Joists.** — Would Mr. Middleton, or some other kind friend, explain the following, more especially as to the mode of finding the scantlings of the wood and iron joists? There is a four-story warehouse, 36ft. by 24ft. in the clear, with two columns in the axis of its length, dividing the building into bays 12ft. by 12ft. The columns carry pairs of rolled iron joists, and wooden joists run from outside to outside wall, resting on the iron joists in their centre. The floors have to carry a weight of 3cwt. to the foot. Calculate the scantling of the wooden joists 14in. centre to centre from the formula—

$$w = \frac{c\,b\,d^2}{l}.$$

Where w = breaking weight in cwts.;
c = 8 for distributed weight;
$b\,d$ = breadth and depth of joists in inches;
l = span of joists in feet.

Safe weight = equal ¼ of breaking weight. Also calculate the scantling of the rolled iron joists from the formula—

$$w = \frac{c\,a\,d}{l}.$$

Where w = breaking weight in tons in centre;
c = 6;
a = area of bottom flange;
d = depth of joist;
l = span in feet.

—Sandow.

[10648.]—**Sign on Granite Facia.**—I have to put a long name on the frieze of a granite cornice. The occupiers being only tenants, the letters cannot be cut in the same. I have specified 6in. letters, cut out of 14lb. lead, each letter to be pinned to the granite, small holes being drilled and filled with Portland cement, into which the pins would be driven before the cement sets. I should be glad to have my idea criticised, and would be obliged for any other suggestion as to the material proposed for the letters and method of fixing.—Sign.

[10649.]—**Load.**—What safe load per foot super. will stock brickwork in mortar and in cement carry?—Tons.

REPLIES.

[10632.]—**Lift and Force Pump.**—I expected some practical man would reply to "Seliba's" query as to "Lift and Force Pump." The sizes of tail or suction-pipe, and rising main or delivery-pipe, appear to be right enough. The defect is probably in the "two bends" in the discharging (before called "delivery") pipe, if they trap air. It is presumed that the height from water in well to working barrel of pump is a foot or two under 30ft., and that the height from pump to tank is not unusually great. The end of the tail pipe may be run into mud or *débris* in the well, or may draw air for want of water, or dirt may get under the clack-valve.—M. M.

[10634.]—**Brick as a Building Material.**—The reply of "Brickwork" to the query of "Ignoramus" is not satisfactory. The number of joints has little or nothing to do with the matter if properly done, nor does any stone attract "atmospheric moisture." Dense, unabsorbent stones condense moisture on the surface, when colder than the atmosphere, and show the moisture as they do not absorb it, and give it off again gradually. A local prejudice against brick, and in favour of stone, implies that the local bricks are bad, and the stone good. Under ordinary circumstances, bricks are quite as good as stone for house-building.—M. M.

[10641.]—**Floors.**—"G. C. B." is quite right—that "laid folding" is obsolete for workmen, even as to "the very commonest broken-joint floors," although retained by surveyors to imply inferior work. But is not "broken joint floors" nearly, if not entirely, as obsolete? So that to many workmen and others it has become unintelligible. Some workmen think that the "broken joints" apply to headings, instead of the longitudinal joints. Cramps, and even wedges, have superseded "folding," and, with prepared flooring, have banished "broken joints," unless where Jerry Buggins rules the roost.—M. M.

Messrs. J. B. Joyce and Co., of Whitchurch, have just erected a clock, striking the hours and showing time on four copper dials, in the Academy, Fortrose, N.B., and which was presented by Mr. J. Douglas Fletcher, of Rosehaugh, Inverness.

A board of army officers at Aldershot have just completed plans for converting the former male and female convict prisons at Woking into barracks for the accommodation of two infantry battalions, to form part of the Aldershot command, and the plans are to be submitted to the Secretary for War, it being intended to complete the conversion in the course of next year.

At the meeting last week of the London School Board, the chairman of the legal committee reported that Sir Richard Webster and Mr. Henry Sutton had given their opinion that the Board should take no further action with regard to proceeding against Mr. E. R. Robson, the late architect of the Board, for neglect of duty in respect of the defective building of the Kilburn-lane school. The report was adopted, and the reference to the committee was discharged.

Legal.

NOTICE TO QUIT.

The giving of a notice to quit is usually a ve simple matter, yet it is the occasion of mu bungling. The length of the notice, of cour depends on the term. For a yearly tenancy must be six months, expiring at the same quar or date as that from which the tenancy beg But here it is a point worth noting that if tenant goes into possession at the half or a other broken part of the quarter, and pays t odd rent up to that quarter, the law regards tenancy as beginning from that quarter, and r from the date of entry, and the notice must given to end then accordingly. Of cour notice can be given verbally; but it is better writing, and a copy should be kept and indors with date and mode of service. If sent by po it will only date from the time it would, in t ordinary course of post, be delivered. It is good plan to send such notices in a register letter. It is a popular delusion to think that a stamp is needed, or that any witness to signatu is necessary.

Another common delusion is as to the time day in which such a notice must be given. The is no rule about serving it before noon, a indeed the law does not split days. The clea and simpler the notice is, the better, so long as specifies the premises, and the time of expi No sort of condition should be attached. One the most constant popular errors is that re cannot be taken or distrained for after the noti is served; but this is only true so far as applies to rent falling due after the noti terminates, and if such rent is taken, of cou the notice is now waived, and a new tenancy created. But rent in arrear or becoming due end of expiry of notice can be distrained sued for in the ordinary course. An agent w receives the rent can give or be served with notice to quit on behalf of the landlord. Wh a tenancy expires by effluxion of time, clearly notice is needed unless such has been agre upon, and yet though this looks obvious, it often a cause of doubt with tenants.

Fred Wetherfield, Solicitor.

1, Gresham Building, Guildhall, E.C.

Note.—All questions for reply in this colun must be headed "Building News," and mu reach my offices, as above, by Thursday morni each week.

R. C. D.—Fixtures.—A timber-framed house built laid upon a brick or concrete foundation, and capable being taken off without touching the soil, would r become the landlord's property, and could be removed the tenant at the end of his term, if it were separate fr the structure of the demised premises. It is on t principle that wooden sheds standing on brickwork ap from the building, have been held removable, while conservatory or verandah, though not let into the s were considered fixtures, because attached to the dwellin house, and so to the freehold.

Constant Reader.—Design.—The drawing, plan, elevation of a building could not be registered und the Patents, Design, and Trade Marks Act, as su designs cannot come within the definition given by s. of that statute, or under any one of the clauses arranged in the Rules. There would be the furth difficulties that a design to be registered must be new a original, and not have been previously published—co ditions with which ordinary buildings could hard comply.

The dedication of the new organ at the Exet Cathedral was held on Friday afternoon. T instrument has been built by Messrs. Henry Wil and Sons, of London. A memorial-tablet in t same cathedral to the memory of General S Howard Elphinstone, who was drowned off Usha eighteen months since, was unveiled by Col. Fre mantle, on the same day.

A portrait of the late Mr. John Clayton, Chester, was presented to the city council of Ne castle-on-Tyne on Wednesday week. It is by M H. T. Wells, R.A., and is hung in the newl decorated council-chamber. Mr. Clayton w town clerk of Newcastle for 45 years, and h father for 37 years before.

One of the landmarks of the village of Sleights the old Hall—has just been pulled down, and t work of re-erection has begun. The old Hall, c to call it by its proper name, Sleights Hall, w purchased, along with certain lands and farms, b Mr. Thomas Fishburn, shipbuilder, of Whitb rather more than 100 years ago. The new Hall being erected close to where the old building stoo the architects being Messrs. Clark and Moscrop, Darlington, and the contractor for the buildin Mr. R. Harland, of Whitby.

LEGAL INTELLIGENCE.

IN RE W. H. TURNER, ARCHITECT, GROCER, AND LICENSED VICTUALLER.—Under a receiving order granted on the 17th ult. against William Hunter Turner, described as an architect and surveyor, of 58 Finsbury-pavement, a statement of affairs has been submitted showing liabilities £874, with assets £24. It transpired that the bankrupt traded for some time at shops in different parts of London as grocer and wine merchant, and also in partnership as a licensed victualler. He states that, having received £300 for his share of an inn in Tenham Court-road, he, in April, 1888, started again architect and surveyor. He attributes his insolvency to loss in the grocery business, and by bad debts since April, 1888, and to his household and personal expenditure having exceeded his profits, by reason of his having been incapacitated for some months, in 1889, by a severe illness. The Official Receiver states that the bankrupt has produced a book purporting to show the details of work done as an architect and surveyor, but that he has kept no other book of account.

ACTION BY SEWERAGE CONTRACTORS.—At Ramsey on Friday and Saturday, before Deemster Gill, the case of Messrs. Holme and King, contractors, of Liverpool, against the Ramsey Town Commissioners was opened. The suit is brought for £3,695 balance claimed under a contract between the parties for the construction of the sewerage system on the Mooragh Estate. The commissioners contend that only £7 is due, which they tender, their engineer, Mr. Mansergh, having certified to that effect. The plaintiffs assert that the money is due for extras caused by deviations, authorised by Mr. Mansergh, from the original scheme.

THE WEST HIGHLAND RAILWAY DISPUTE.—Sheriff-Substitute Gebbie has issued judgment in the case by the West Highland Railway Company against their contractors, Messrs. Lucas and Aird. He finds that the pursuers have accepted the tenders' measurements as fixing the quantities of the work executed by them, and therefore authorises the pursuers to carry on the railway works, to re-let the same, or part thereof, and for that purpose to take possession of the works, and all materials, tools, and implements, and declares the interdict formerly granted perpetual. He also finds the pursuers entitled to expenses.

CLAIMS ON THE COCKERMOUTH RURAL SANITARY AUTHORITY.—LARGE CLAIMS AND SMALL PAYMENTS.—This authority, in constructing works of water supply, laid water-pipes through the land of Mr. William S. Parkin, of Lincoln's Inn, barrister-at-law, in the township of Great Broughton, upwards of seven years since, and recently of Seaton, and a claim was made by the owner for payment for such easement, &c. The claim was referred to Mr. Watts, of Workington, on behalf of the owner, and Mr. Richardson, of Carlisle, on behalf of the authority; but as these gentlemen could not agree upon the appointment of an umpire, Mr. Hodson, C.E., of Loughborough, was appointed umpire by the Local Government Board, upon the application of the authority, under the provisions of the Pubic Health Act, 1875. The umpire held his reference at the Green Dragon Hotel, Workington, on the 1st of September last, and other days, having previously inspected the premises. Mr. Milburn, solicitor, Workington, appeared on behalf of the owner, and Mr. Musgrave, of Cockermouth, the clerk to the authority, on the Board's behalf. Mr. Parkin claimed the sum of £500, and evidence was given on his behalf by Mr. Potts, Mr. Woolcock, of Whitehaven, and Mr. Castiglione, of Workington; and the case of the authority was suported by the evidence of Mr. Paisley, Overend; Mr. Richardson, Carlisle; and Mr. Pickering, Whitehaven. The arbitrator has by his award directed the sum of £6 9s. 6d. (which does not exceed the amount offered by the authority) to be paid to Mr. Parkin instead of his claim of £500, that Mr. Parkin pay his own costs, and also one half of the costs of the arbitrator, and his award (the total cost of the arbitrator and award being £5 19s. 1d.) At the same time the arbitrator adjudicated upon a claim of £100 made by Messrs. Milburn, of Seaton, for easement of laying pipes through their land there, the claimants and the authority being respectively represented by Mr. Milburn and Mr. Musgrave. The arbitrator has, by his award, directed the sum of £3 10s. (the amount actually offered by the authority) to be paid to Messrs. Milburn; that Messrs. Milburn pay their own costs, and also one-half of the costs of the arbitrator and his award (the total cost of the arbitrator and award being £24 12s. 1d.)

DELAYS ARE DANGEROUS.—Mr. James Hunt, builder and contractor, of 81, St. John-street, was summoned to the City Guildhall at the instance of Mr. Hugh McLachlan, district surveyor of the Western division of the City, for that on April 30th, 1891, in doing certain work in respect of a building situate at 12, Little Britain, he did form a roof over the rear portion of the main premises with its lower planes of the surfaces of the roof inclining from the external and party-walls at greater angles than 47 deg. with the horizon, contrary to the Metropolitan Building Acts 1855 (18 and 19 Vic. c. 122 sec. 46). And that he did omit to carry up the party-walls above any part of any roof opposite thereto, and within 4ft. from such party-walls, contrary to Sec. 7 of the said Act. Mr. Raven, for the defendant, took an exception that the district surveyor had served his notice of complaint weeks after the building had been completed. Mr. McLachlan said the delay that had arisen was owing to the fact that there was a considerable amount of correspondence on the subject.—Sir Andrew Lusk: Was the place finished before the notice was served? Complainant said he believed the building was finished before he served the notice, but he had been corresponding on the matter for some time. The Alderman held that the district surveyor had acted wrongly, and dismissed the summons, refusing a case for the superior courts.

INHABITING A HOUSE WITHOUT A CERTIFICATE.—IMPORTANT DECISION.—Mr. J. H. Pemberton, a financial agent, of Manchester, was charged at the County Police-court, Strangeways, on the 1st inst., before Messrs. J. H. P. Leresche (stipendiary) and W. W. Cooke, with letting a house at Urmston, within the district of the Barton Rural Sanitary Authority, for human habitation, without having first obtained a certificate from the surveyor to certify that the house was fit for habitation. Mr. Crofton (Messrs. Crofton and Craven), instructed by the clerk, Mr. Henry Whitworth, represented the authority, and stated that the defendant had built a large number of houses in Railway-road, Urmston, one of these being let to Mr. Maddocks, who would be charged with occupying the house before the surveyor to the authority had certified that the same was fit for habitation. Mr. Hooley, C.E., surveyor to the authority, proved the case, and was cross-examined by Mr. Pemberton, who endeavoured to show that he was not the responsible party, not being the owner. Mr. Pemberton, in reply to the bench, explained in a long statement, that he was the agent. The bench informed Mr. Pemberton that they fully understood his position, and that the case had been proved, and he would be fined the full penalty of £5 and costs, or in default, one month's imprisonment. Mr. Crofton, by consent, withdrew the summons against Mr. Maddocks.

IN RE J. TROLLOPE.—Under a receiving order made against James Trollope, builder and contractor, of Bond-court, Walbrook, and of Lower Walmer, Kent, a statement has been furnished showing liabilities £12,271, of which £2,511 are unsecured, with an estimated surplus in assets of £1,064. The debtor began business about twenty ago, and has since been mainly engaged upon contract work for the Government. In 1888, he sustained a loss on the building of the sea-wall at Deal, and since that year he has carried on his business with the assistance of persons who have financed him under arrangements as to share of profits. In 1881, he also entered into partnership with another person, and they traded at Camberwell and Mitcham as varnish manufacturers until 1883, when the firm was dissolved. He attributes his failure to his inability to realise house property built by him, the mortgagees of which are now in possession.

SERIOUS CHARGE AGAINST AN ARCHITECT.—At the Teddington Sessions on Monday, Arthur Muckleston Leach, 38, surveyor and architect, carrying on business at the London Joint Stock Bank-buildings, Smithfield-market, and Henry Cove, a coffee-house keeper, of Mormon-road, Bermondsey, were charged on a warrant with having conspired together, with another man not in custody, to obtain by false pretences from the Liverpool, London, and Globe Insurance Company £550 with intent to defraud.—Detective-Inspector Dennie stated that after a fire had taken place at the Rocks, at Bedfont, on July 16, he found that the prisoner Leach took the house, a man named Adams, not in custody, but who was wanted, being with him at the time. After the house had been burnt down Adams went to the company's offices in support of a claim made by Leach, whose furniture had been insured with the company. Cove was also a companion of Leach's, and he visited the house with the prisoner an hour and a half before the fire occurred. Subsequently to the fire Cove also went to the office in support of Leach's claim. Leach made a declaration that he had never before made a claim upon any insurance company. Four fires had occurred upon premises of which Adams was the occupier, and in which the property was insured. In each case the fire followed a few months after insurance, and there were suspicious circumstances attending all four. Leach had had some small fires, for which he had made claims upon the Northern Insurance Company. Cove had occupied the premises where some of the fires mentioned had occurred, he acting as manager of the premises. The furniture which was burnt at the Rocks was insured by Leach on October 29, 1890, for £350, while he was living at 175, High-street, West Norwood. It was removed to Bedfont on July 15 last, and on the 26th of the same month, at the request of Leach, the insurance was increased to £550. The fire took place on the 16th of the following month.—Mr. Higgington, a clerk in the employment of the insurance company, said Leach had claimed for the full amount, and valued his furniture at £796 1s. 9d. In a letter dated September 8 Leach had offered to accept £210 in full discharge of all claims against the company.—A domestic servant gave evidence showing that things mentioned in the claim by Leach were never in the house at all.—Samuel Penn, the owner of the Rocks, deposed that after Leach's house and the adjoining one had been burnt down, there was a very strong smell of paraffin on the premises.—The magistrates decided to remand the prisoners until Monday next, and they refused to accept bail, however substantial. It was stated that the Treasury would take up the prosecution.

STONEMASONS' WAGES AND TRADE CUSTOMS.—Mr. Bushby gave judgment at Worship-street on Friday in a dispute between a journeyman stonemason and his late employer. A man named Cates had summoned a member of a firm of stonemasons, having business premises in Worship-street for money for work and labour done. The case had occupied the court two afternoons, a number of men being examined to prove trade custom and rules, but the evidence was most contradictory. Cates, it seemed, had been employed as a mason on some repairs at Limehouse Church. When dismissed, at the end of a week—the working week ending on a Friday—he was offered his money at the rate of 9d. per hour for 57½ hours, but he refused to take it, though he had been paid during previous weeks at the same rate. He claimed to be paid for a portion of the time at the rate of 9¾d. per hour, and also claimed riding money 3d., overtime at the rate of time and a-half, grinding-money, and an hour's wages in lieu of notice. The dispute as to the ¾d. per hour resolved itself into a question whether Cates was a mere mason or a "mason's fixer." With respect to the overtime, it was said to have been done without orders, and that the men had gone on working instead of waiting idle for the arrival of their money on a certain Saturday. The masters' contention was that overtime could not be made without the orders of the master. In this case it was voluntary work. As to an hour's notice or payment, a number of journeymen, comprising builder's hands, foremen, &c., gave evidence *pro* and *con.*; but those for the complainant admitted that they had not ever given a master an hour's notice, and knew no instance of a journeyman doing it. Mr. Bushby decided with respect to the claim for 9¾d. per hour, that it could not be maintained by a mason because he, at the request of a foreman, did "fixer's" work for a short time. He disallowed that extra claim, and also the claim for riding money, as being unauthorised expenditure. The claim for time and a-half for "overtime" he allowed, as it was agreed to by the code of rules. The claim for grinding money was disallowed, because the journeyman could have had the tools sharpened by the employer in the usual course. As to the qustion of an hour's notice, the balance of evidence was against the men, and that claim was disallowed. Judgment was delivered accordingly, with 10s. costs.

CHIPS.

A new choir vestry has just been added to St. Cuthbert's Church, Darlington, called sometimes, from the beauty of its proportions, the "Lady of the North." A new carved and traceried oak screen has also been erected across the western porch, both from the designs and under the superintendence of Messrs. Clark and Moscrop, architects, Darlington.

The boys' department just added to the Lady Vernon Memorial schools, Gateshead, will be opened by the Marquis of Londonderry to-morrow (Saturday). The new school is a separate building accommodating 480 boys, and is built of red brick, faced with stone. Mr. Stephen Piper, M.S.A., of Westgate-road, Newcastle-on-Tyne, is the architect.

A movement is on foot at Glasgow for the institution of a Society of Ceramic Art for the study, examination, criticism, and discussion of antique and other pottery, porcelain, glass ware, stained glass, and enamels, and to afford collectors of the antique, antiquaries, archæologists, and students of industrial art a medium of communication and interchange of opinion on the subject of ceramic art and cognate matters. Mr. Oscar Paterson is the organiser.

An infants' school in Brook-street, Carlisle, was opened on Monday. It has been erected under the supervision of Mr. T. Taylor-Scott, F.R.I.B.A., of Carlisle, with Mr. J. D. White as clerk of works. The style is Gothic, and the material used red Cumwhinton bricks and white stone dressings with Buttermere green slates. The chief contractors were:—Builder, Mr. John Laing; joiner, Mr. J. H. Reed; and plumber, Messrs. W. and R. M. Hill.

WATER SUPPLY AND SANITARY MATTERS.

Birmingham Proposed New Water Supply.—At Tuesday's meeting of the Birmingham Town Council the water committee's report was submitted on the new scheme for a supply from the upper waters of the Elan and the Claerwen, in Wales. Mr. James Mansergh, C.E., has given an estimate for the first instalment of the works, which will be sufficient to deliver 26,000,000 gallons a day. The estimate for that is £4,340,700, including £435,728 for contingencies. The water committee have also estimated the cost of extending mains for ten years, and the cost of keeping their present works in repair during the ten years the Welsh scheme is in progress of development. They have reckoned those contingencies at £195,000, and have added £86,250 for two new reservoirs—one at Warley, to supply the high part of Edgbaston, and one at Northfield, these two sums bringing the estimate up to £3,621,950. Mr. Mansergh estimates that Birmingham will begin to want the second instalment in 1908, and a fourth in 1932. After some discussion the report was unanimously adopted.

Cambridge.—The town council have adopted the scheme of Mr. J. T. Wood, of Liverpool, for the redrainage of the borough. The scheme of collection is estimated to cost approximately £100,000. To this is to be added, as soon as the Corporation arrive at a decision, the cost of the purification or utilisation of the sewage. Mr. Wood has also been called in to advise the Chesterton Local Board, with the view to their combining with Cambridge for a joint scheme.

Deeside, N.B.—On Saturday the Deeside District Committee of the Aberdeen County Council adopted the report of Mr. G. Gordon Jenkins, C.E., Aberdeen, providing for a special water supply and drainage district for the village of Hoyne and its surroundings. The water is to be taken from the Dinnie Burn, on the Glen Lora property of Sir William C. Brooks. A reservoir will here be erected, and a three days' supply will be stored. By the new scheme the sewage of Hoyne, instead of being let into the Dee, will be distributed in an irrigation meadow. The total cost of the works is put at £3,950.

Labourers' Houses in Suffolk.—Colonel Pocklington held an inquiry on Friday at Ixworth under the Housing of the Working Classes Act, an application having been made by the Thingoe Rural Authority to the West Suffolk County Council for a certificate for the adoption by such sanitary authority of Part III. of the Act in the parish of Ixworth. Mr. Kilner, medical officer of the Thingoe Rural Authority, said he reported the Stow-lane Cottages in February last as dilapidated and unfit for human habitation, and magisterial closing orders were made. The cottages continued in the same bad condition. The same must be said of cottages in Comister-lane. It would probably cost more than most of the cottages were worth to put them in a proper condition. The only thing to be done was to reconstruct them. Most of the cottages were still occupied. With the exception of the eight cottages under consideration, the condition of house property in Ixworth was not worse than in the other 48 parishes in the Thingoe rural district. The solicitor of the Ixworth Labourers' Association contended that if it were necessary that more and better houses should be erected at Ixworth, they should be built without further delay. Twelve cottages could be built in Ixworth by the Thingoe Union at a charge of less than one penny in the pound per annum.

Water Supply from the Colne Valley.—Several members of the London County Council and City Corporation visited Rickmansworth on Saturday to inspect the wells belonging to Mr. George Webster, of Cannon-street, E.C. Under the advice of Mr. Claud Monckton, C.E., Mr. Webster has had a series of five wells sunk on his property at Harefield Grove and Springwell, near Rickmansworth. They vary in depth from 115ft. to 282ft., with boreholes from 24in. to 40in. in diameter, lined with steel tubes, carried down into the solid chalk. From the wells there are now already some ten million gallons of water per 24 hours available for immediate use, while it is conjectured that the supply could be doubled in volume. With a view to utilising this supply for the Metropolis, Mr. Webster has obtained easements, and has negotiated terms for conveying the water as far as Paddington. A reservoir capable of containing 5,000,000 gallons has already been constructed in an elevated position, and there is room for others, either for service or for softening purposes. Dr. Percy F. Frankland states that the water is of excellent quality for drinking and other dietetic purposes, and that its hardness is neither excessive nor much greater than that of the river water supplied to London. It is proposed to connect the wells at Springwell and Rickmansworth, and to pump the water up to the reservoirs, whence it would be conveyed by gravitation to the Metropolis.

Our Office Table.

The new session of the Surveyors' Institution will be opened on the evening of Monday, November 9th, when Mr. R. C. Driver, who has been elected as president for a second year of office, will deliver his inaugural address. The Institution is rapidly increasing in numbers and wealth, and the premises in Great George-street, Westminster, although enlarged a few years since, are beginning to appear cramped, especially in library accommodation, and it is on the boards that within a few years the Council will have to build a home for themselves on a more commodious plan. The membership, which but four years since stood at 1,200, is now within thirty of 2,000, and it is probable from the nominations sent in that the first election after the new session is opened will bring the total to 2,300. A recent innovation in the direction of registration made by the Institution is to register, free of charge, the articles of pupilage of all young men entering the profession, whether indentured to members of the body or to outsiders. The next examination for the special certificate, which confers on members an honours diploma in (1) forestry, (2) sanitary science, and (3) land surveying and levelling, and is quite distinct from the ordinary examinations of admittance, will take place in June, 1892, and all entries of candidates must be sent in before the 20th April next.

The London School Board received, at their meeting yesterday (Thursday), a report from the Works Committee with regard to a letter from Messrs. Kirk and Randall, contractors, of Woolwich, dated 4th ult., stating that, on the 13th August they received an intimation from the Board that they had been selected to tender for the erection of the Kemsing-road School, Greenwich; that, on the following day, they replied that they would be pleased to submit a tender; that, on the 31st August, they tendered to carry out the work for £16,354; that, on the 3rd September, they received a letter informing them that the tender of Messrs. W. H. Lorden and Son had been accepted at £16,881: asking why they have been passed over, and the work given to a firm whose price is £527 more than theirs, and adding that it does not appear to be fair to them as contractors, nor satisfactory to them as ratepayers. The committee reported that Messrs. Kirk and Randall are in error in stating that there is a difference of £527 between the two tenders for the erection of the Kemsing-road school, the actual difference being only £121, when account is taken of the provision for building in cement. The committee mentioned that when the tenders were received at the committee meeting on the 31st August, the tender of Messrs. Kirk and Randall was lowest for another school (Trundley's-lane), the erection of which was then allowed to remain in abeyance in consequence of a difficulty with regard to the drainage, but the committee are now recommending the acceptance of Messrs. Kirk and Randall's tender for this school. In accordance with the recommendation of the committee, it was agreed a reply should be forwarded to Messrs. Kirk and Randall, reminding them that, as stated in the invitation to tender, the Board are not bound to accept the lowest or any tender.

The difficulty of dealing with excessive rainfalls like those we have recently experienced, has been felt very much in Brooklyn and other large western cities. The construction of storm sewers of sufficient size to carry off heavy falls of rain has been variously entertained. Some engineers prefer the "separate" system, by which the storm waters are carried away by a distinct system of sewers, to that for the conveyance of sewage, which may then be small. But, as one writer says, the difference in cost is due to the difference of depth of excavation; in either case, the same duty of carrying away the storm water has to be met, and the same capacity of conduit required in either case. The question of which is the most desirable form of conveyance of excessive rainfall is one that will have to be decided before long. No doubt, as main sewers are in existence, and are found too small for storm water, owing to the growth of population, separate channels and drains ought to be provided for the storm water in most of our older towns.

Professor Von Pettenkofer, whose experiments on the permeability to gases of buildi materials are well known to our readers, h recently turned his attention to the self-purific tion of rivers, and has read an interesting pa on the subject at the annual congress of Germ Naturalists and Medical Men, held at Hal His researches and experiments were made on t waters of the river Iser at Munich. Munich h 280,000 inhabitants, and 20,440 kilogrammes refuse are carried into the river every day. B again, each day 3,456,000 cubic centimètres fresh water flow down the stream, so that t proportion of refuse or dirt to the water is or 6 to 1,000,000 or 6 milligrammes to the litre pollution which, if artificially produced in a gl of water, is unrecognisable to the naked e Analytical experiments show that even th pollution disappears less than five miles below t city. This self-purification of rivers has ger rally been attributed to sedimentary deposits, h Pettenkofer is convinced that it is the effects oxygen, partly freely dissolved in or absorbed the water, and partly produced by water plan He considers that the great quantity of low veg table organisms in water plays a great part in t purifying process. The vegetable growth river beds should, according to Pettenkofer, protected, and refuse water from mills, chemi works, &c., which is destructive to vegetal growth, should not be allowed to flow into rive unpurified.

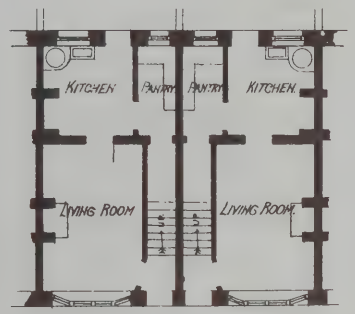
The death occurred in Newport on Frid of Mr. A. Gunn, who was for many years an t teacher in Wolverhampton. The deceased w appointed head master of the School of Art Darlington-street, about twenty-five years ag and on the opening of the Municipal School Art his services were secured in the sam capacity. About two years ago he resigned h office, and four months back he crossed t Atlantic to join his son, who is resident in t United States. The deceased gentleman, duri his long sojourn in Wolverhampton, w eminently successful as a teacher, and w highly respected.

The death by drowning is announced fr Siam of Mr. William John Galwey, M.Inst.C.E while employed as chief of the engineering st in the survey of the projected railway fr Bangkok to Chiengmai and Chiengsin, on t South-West frontier of the Chinese Empire distance of nearly 1,000 miles. Mr. Galwey, w was 60 years of age, began his career in 1855 assistant engineer on the East Indian Railwa and in 1872 was offered, and accepted, serv under Government on the State railways. T bridge over the Jhelum river, on the Punja Northern Railway, and the Empress Bridge, t foundations of which were laid in the bed of t stream, at a depth of 100ft. below water lev were his work; and his last Government emplo ment was that of chief-engineer-in-charge of t Rajpootana State Railway. He had worked the past two years in Siam, and had practica accomplished his mission.

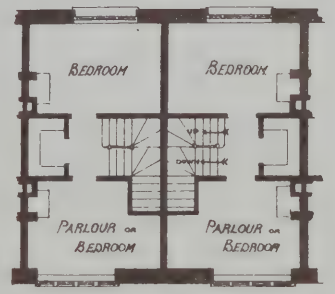
Last Saturday night the first of a series conversaziones in connection with the Co-oper tive Builders (Limited), Burton-road, Brixto was held in Longfield Hall, Knatchbull-ro Camberwell. There was a large attendance members, relatives, and friends. The soci was founded in 1888. It is composed entirely working men employed in the building tra who divide the whole of the profits of the busin among themselves, the result being that since t foundation of the society they have receiv 1s. 6d. in the pound on their wages in additi to the formation of a large reserve fund and depreciation. The business amounts to ov £27,000 per annum, and would be larger if t society's capital would allow it to extend operations. During the evening Mr. J. C. Gra Secretary of the Co-operative Union, deliver an address on the benefits of Co-operation, a congratulated this local society on the success had achieved.

The bust of the late Sir Robert Fowler, model by Mr. Walter Merrett, has been selected by t Library Committee of the corporation from amo those submitted to them in competition. It will executed in marble and placed in the Guildhall.

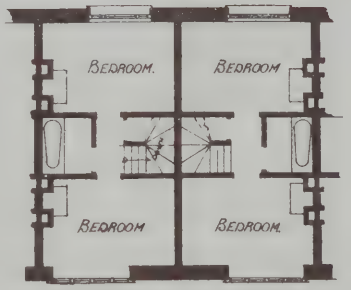
The Vienna Reichsrath on Tuesday passed a B remitting about one-half of the very heavy taxes dwelling-houses for the term of 20 years upon artisan dwellings, on condition that the re demanded does not exceed a certain defined li per square mètre.



GROUND PLAN.



FIRST FLOOR PLAN.



SECOND FLOOR PLAN.

COTTAGES AT CADOXTON BARRY DOCK

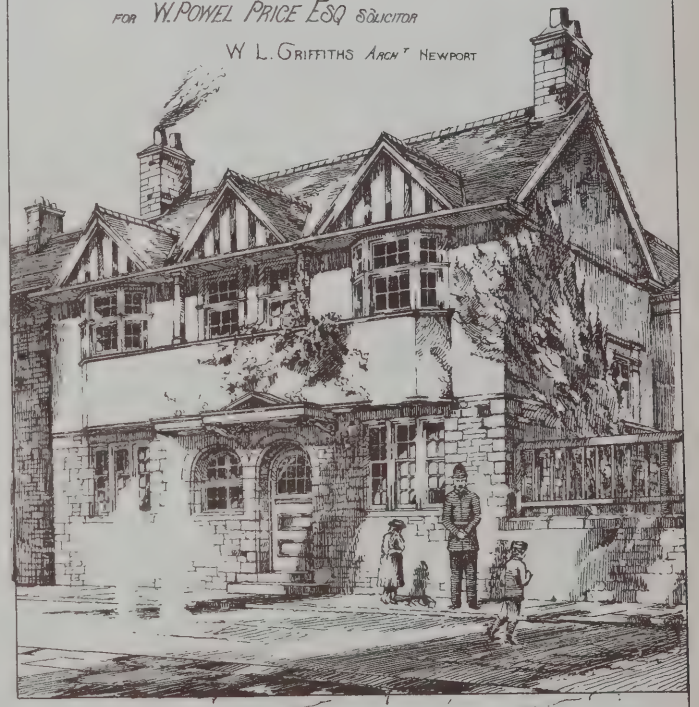
SOUTH WALES

W.L GRIFFITHS ARCH.T NEWPORT. MON

OFFICES AT BRECON

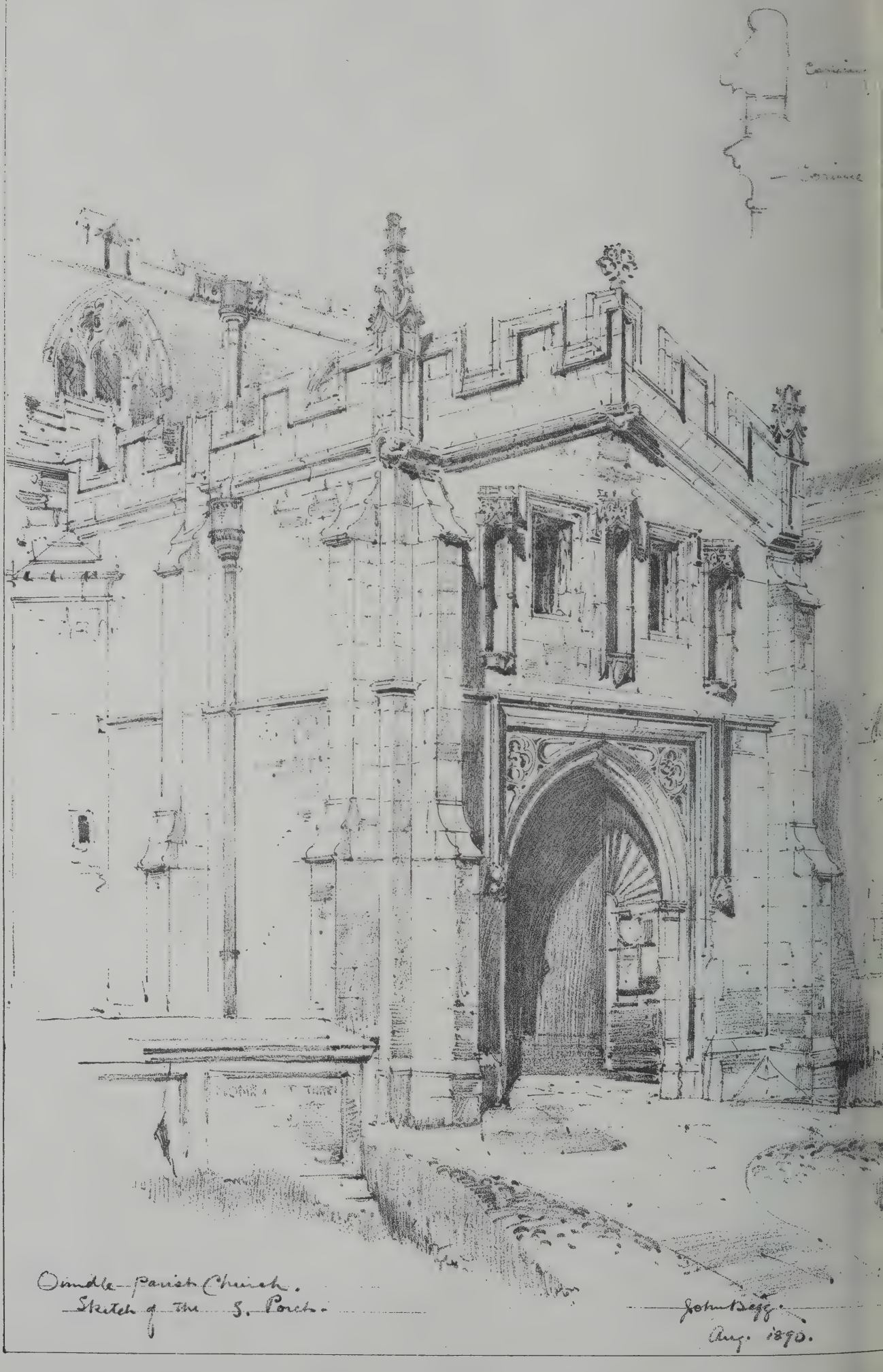
FOR W. POWEL PRICE ESQ SOLICITOR

W L. GRIFFITHS ARCH.T NEWPORT





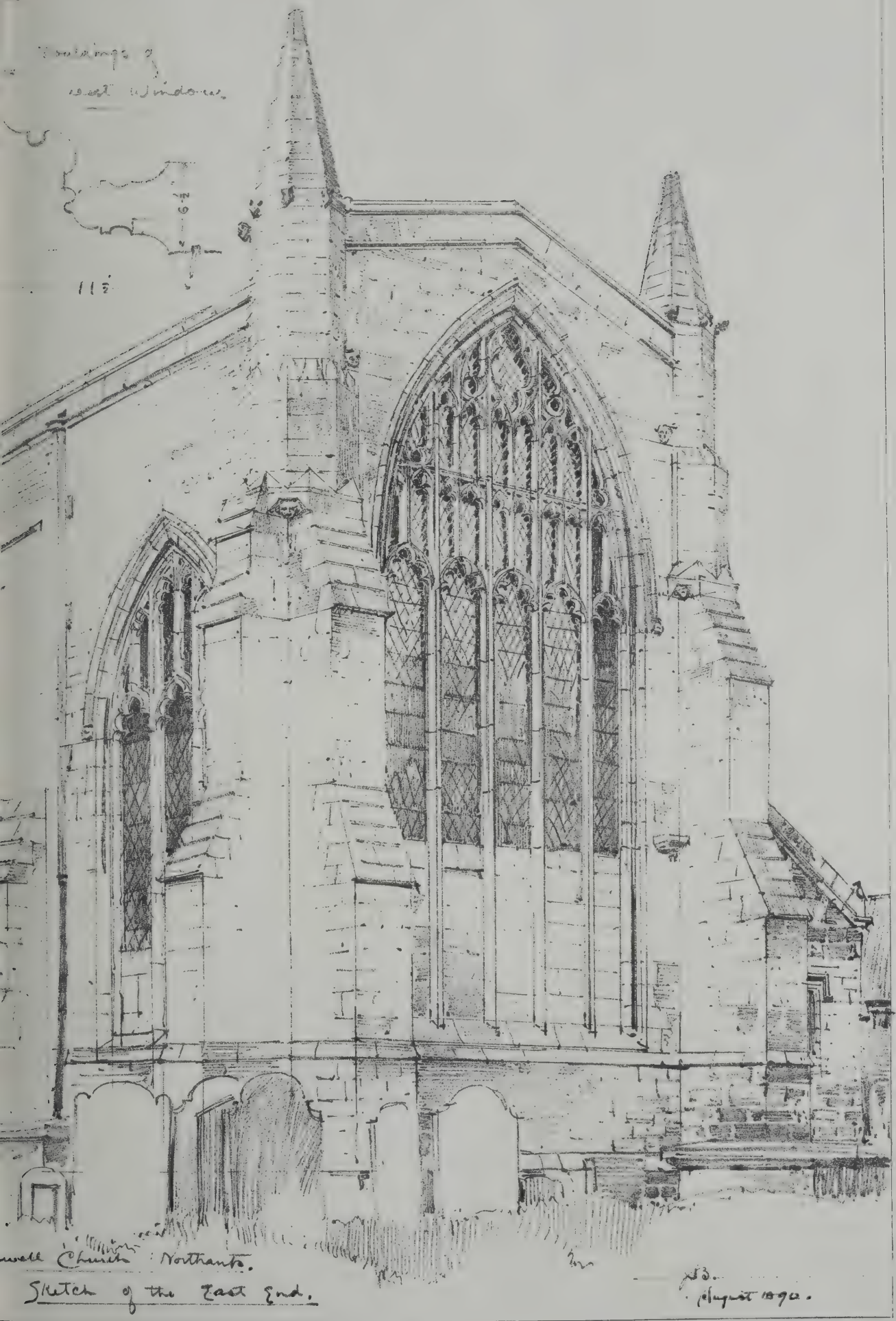
OUNDLE · PARISH · CHURCH · SKETCH · OF · THE · SOUTH · PORCH ·



Oundle Parish Church.
Sketch of the S. Porch.

John Begg.
Aug. 1890.

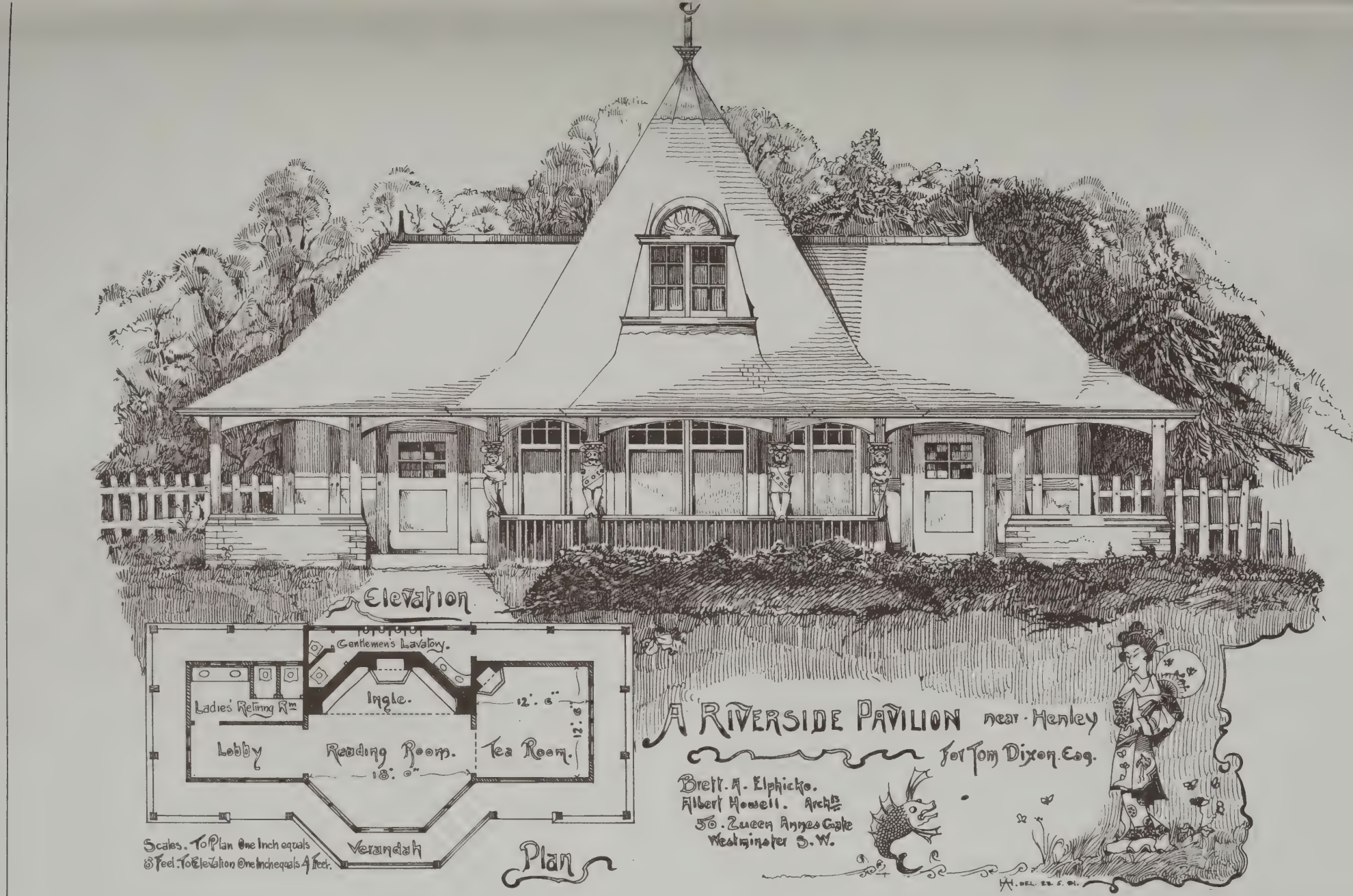
ROTHWELL CHURCH · NORTHANTS · VIEW OF THE EAST END



Sketch of the East End.

August 1890.

"PHOTO-TINT," by James Akerman 6, Queen Square, London, W.C.



A Riverside Pavilion near Henley

for Tom Dixon. Esq.

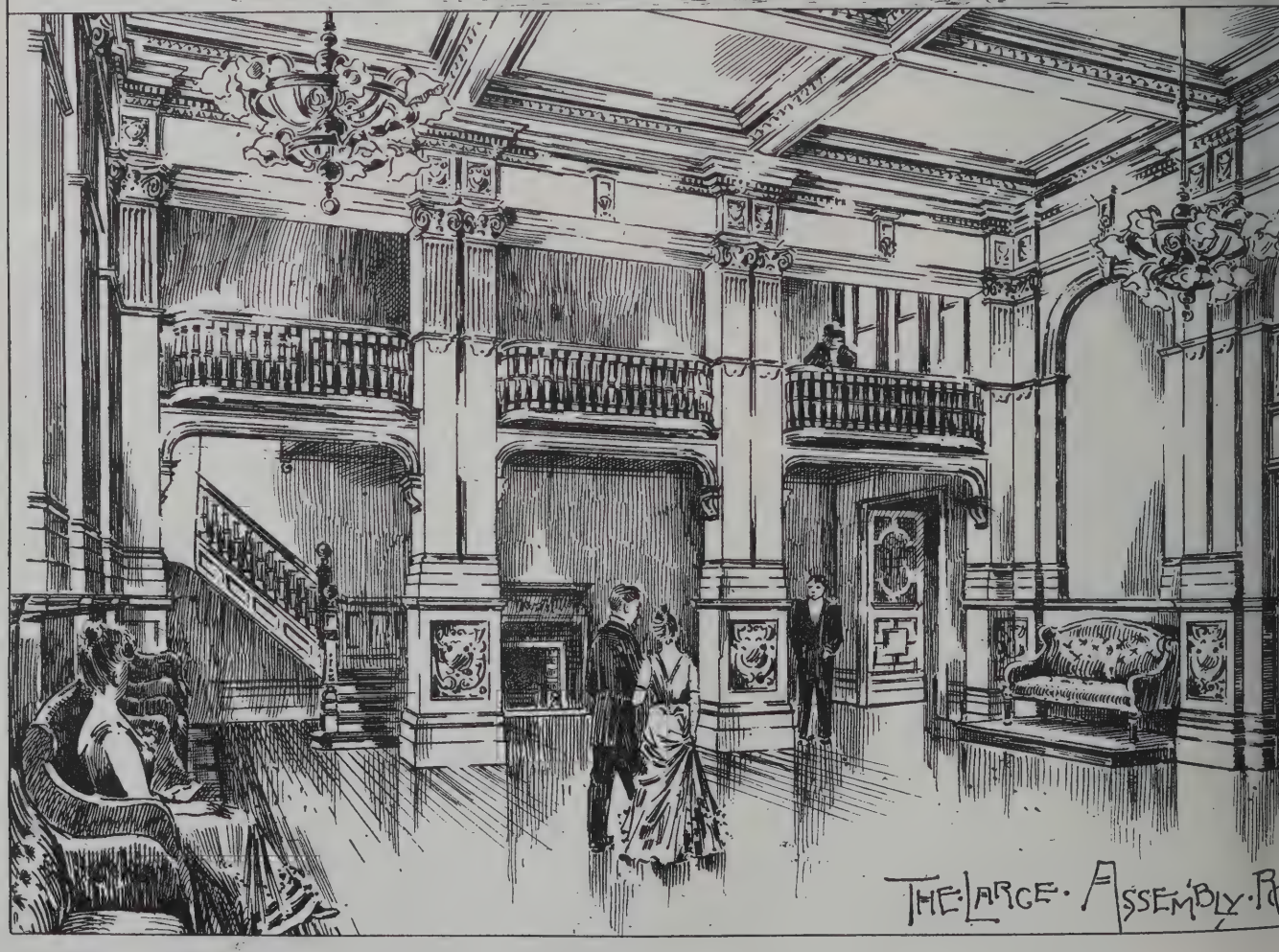
Brett. A. Elphicke.
Albert Howell. Archts
50. Queen Annes Gate
Westminster S. W.

Photo Lithographed & Printed by James Akerman, 6, Queen Square, W.C.

THE GRAND HOTEL

BARRAS BRIDGE NEWCASTLE ON TYNE





THE LARGE ASSEMBLY R

LAMB, ARMSTRONG & KNOWLES
Architects







PLAN OF PRINCIPAL FLOOR

Photo-Lithographed & Printed by James Akerman, 6, Queen Square, W C



DRAWING ROOM CHIMNEY PIECE.



LIBRARY CHIMNEY PIECE





"PHOTO-TINT," by James Akerman 8 Queen Square London W.C.

DINING ROOM · CHIMNEY-PIECE.

MR VALLANCE'S SIDEBOARD.

CHIMNEY-PIECES · CLOVERLEY HALL & SIDEBOARD · FARNHAM ROYAL

DESIGNED · BY · THE · LATE · W · EDEN · NESFIELD · EXECUTED · BY · JAMES · FORSYTH · SCULPTOR ·

HE BUILDING NEWS
AND ENGINEERING JOURNAL.
VOL. LXI.—No. 1920.
FRIDAY, OCTOBER 23, 1891.

E PUBLIC AND THE PROFESSION.

WHILE the professions of law and medicine are respected by the public, t of architecture is regarded with an ifference which seems to corroborate the adage that "familiarity breeds con-ıpt." Both the former are protected and ced round by law, while that of archi-ture is open to all comers, and is not requently practised by men who have tainly very little special or technical alification to produce. We have often ndered at and lamented this indifference; when we come to think, it is the same h all institutions which are free and open, ile those which are closed are more highly oured. We cannot be surprised, knowing general tendency of the human mind, to imate more highly matters and qualifica-ns that are beyond the reach of the ny. Architects themselves are beginning estimate their position, and to make a vement towards some kind of statutory otection, and the example set in this ıntry has been followed by the profes-n in the Dominion of Canada and in toria and other Australian colonies. e idea is to close the profession, to set ound it distinct boundaries, and to make ess accessible to ignorant pretenders. The des connected with building are also alive the same movement. They have dis-ered that it is to their own interests to rk off their crafts from others, and to otect themselves by trade organisations. e same kind of positive and circumscribed owledge is assumed everywhere. Even igious bodies are struggling for recog-ion and supremacy by federation and ıer means. One of the strongest elements the life of a profession, as it is of bodies l institutions, is to have a circumscribed, ed, and positive character. The least ccessful are those which are lati-linarian and invertebrate in their aims. chitecture, unfortunately, has been too g of this broad and limitless character. has fraternised with extremes; on one e with those who have no taste for art, l who would abolish the profession if y could as useless and expensive, and h others whose art-fanaticism has carried m to the extreme of ignoring all ordinary mmon-sense rules. In other professions, re are agnostics and orthodox believers,— the medical, for example,—but in the ks of architecture we find men of these treme views very frequently — many o are not particular about professional quette, and would not mind doing un-fessional things, such as underbidding established fees, and in taking contracts l commissions; others who do their work proxy. The public are quick in detecting se irregularities in practice; in finding t, for example, that there are architects be had who will give their services at f the recognised fees, and undertake any rk even though they are incompetent. eir estimate of the profession is lowered consequence. The results of legal isions have also not been favourable to profession in many cases. On the other nd, we find that intelligent people prefer deal with men who have a high view of ir profession, who carry out their work on nciple, especially with those who confine mselves to their special art. A profession ich has many "jacks of all trades" cannot regarded without suspicion; on the other nd, a defined art in which precise views held is esteemed.

The interference of clients with architects is one of the results of the estimate in which the art is regarded. The lay mind can see nothing in it but what it can comprehend. They note buildings of various styles and arrangements, and they attach very little importance in their own minds to an art which seems one of whims and fancies. Few people would think of questioning a medical man as to his competence in dealing with a disease; they would certainly hesitate to interfere with his mode of treatment, and why? Because they know the subject is beyond their knowledge. In matters of law also they would not venture to interfere; but in building, the same persons would not scruple to call in question the architect's opinion, and to insist upon their own views being carried out, the reason being that architecture is an art based on common-sense requirements; building is a mechanical sort of business, which most people imagine that they can master, while both law and medicine are hedged round by technicalities, statutes, and a terminology which are sufficient to frighten the most inquisitive. No doubt from a professional point of view this is one of the disadvantages of belonging to a vocation which is too easily comprehended by the public, and which is so often followed by amateurs. There is an advantage in being able to throw a veil of mystery over a profession or a craft. On these grounds we cannot but see an advantage in rendering the profession and its art less accessible to the many. The Architectural Association, in its new curriculum, has been working on these lines, the amateur element of the old classes having given place to a strictly professional course of study.

There are two classes of the public, those who are ignorant of architecture, and those who know a little. It cannot be doubted that the latter are the most implacable in their demands upon the architect. They want something, they do not know exactly what. In their dealings with the architect they are to a large degree dependent on what they have seen; but as they cannot find the means of conveying their requirements, they are ceaseless in their interference. The really ignorant client relies implicitly on his adviser; he may be troublesome about cost—want to know a great many things as they occur on the building—but he trusts. One of the most common kind of interference is that of questioning designs. The architect is perhaps coolly told that some other building is perfect, or that Mr. Somebody's architect has arranged this or that very well, and that he, the client, should like it followed. Now this is, to say the least, a gratuitous insult to the adviser, and really is tantamount to telling him that he has yet to learn his business. A man may be forgiven for expressing his satisfaction with a certain building; but a request that his own plans should be altered to make them like something else, is really to call in question the judgment and taste of one's architect. We cannot be surprised if such interference calls for indignant protest on the part of a professional man, for it is equivalent to a patient telling a medical practitioner that some other doctor's prescription is more suitable. Of course, if we consider the question, it is really setting up one's own opinion and acting on one's own judgment, to say that this plan must be altered to agree with something else. The extraordinary thing about the matter is that clients of this kind do not see the absurdity of engaging an architect to prepare plans for them, and afterwards ignore them for not doing, as they think, right. Why not employ a draughtsman or a builder to make designs according to some example?—which procedure would be far more reasonable. The experienced architect knows how to deal with clients of this sort, and would tell them plainly what he thought of a suggested amendment that did not approve itself to his mind. Numerous cases of this kind occur, and are occasionally reported in legal proceedings; but it is worth while to notice one thing about this treatment—namely, the very vague and imperfect notion of the architect's office entertained by clients of this sort. The supposition explains, indeed, much of the anomalous condition of the profession; how little the employer understands the real function of the architect; how frequently he regards him as a mere copyer or vendor of designs. Such clients think that the design of a building is a sort of mechanical art; that, given certain requirements, the architect has only to apply easy rules to produce a design, or that designs are like tailors' patterns, ready prepared, and only to be selected by the owner. This last idea, perhaps, is the more common one amongst people who know very little about the art. Practically, as anyone can see, it transfers to the owner the responsibility of selecting or accepting a design, the architect simply becoming a passive agent, leaving the matter in the hands of the employer. The profession, unfortunately, encourage this idea by acting in the way they often do. For instance, they cater to the taste of their employers; they undertake to prepare several sketch plans for approval, and are willing to design "to the order" of the client, whatever it may be. No practice can be more inimical. Imagine, for a moment, a professional lawyer, or doctor, or sculptor placing himself at the disposal of his employer in this manner, agreeing to follow his wishes, however contrary it may be to his own judgment! Yet this is precisely the position of the architect when he agrees to submit designs for his clients' approval, and when he alters and amends his work, till it is absolutely not his own at all. How can we expect the public to respect a profession which is so condescendingly pliable, which appears to have no decided views about points of plan and style? Very naturally, such persons draw their own inferences; they conclude that there are no principles or canons of art; that there is very little science about building, and therefore the duty of "drawing" plans is very easy. These are the people who dispute the ordinary percentage, commission, and fees, and who think it no wrong to retain drawings and make use of them. How can they think otherwise, when architects deal so lightly and complacently with their skill and experience?

Mistakes in practical matters, such as bad drainage and sanitary arrangements, imperfect ventilation, and faulty construction have materially diminished the public appreciation of architects' services. When we come to consider that these defects or failures are often owing to the deference shown by architects to their clients—as, for instance, in the process of cutting down cost by using inferior materials, and adopting arrangements of faulty character—we are forcibly reminded of the suicidal policy of too readily acceding to the wishes of clients. We by no means counsel an obstinate refusal to admit alterations in plan or design when they are evidently improvements. No professional man exhibits much discretion in shutting his eyes to suggestions of value, even when they are shown in works by rivals.

We deprecate, however, the playing into the hands of a vacillating and ignorant client, the acceding to every whim, the making alterations which the architect knows are wrong, and, in short, acting as if he were carrying out, not his own, but his client's wishes. More decision of opinion, and more determinateness in action in enforcing professional duties, are the only conditions upon which the public will retain their confidence in the profession.

NEWINGTON PUBLIC LIBRARY COMPETITION.

THE Newington Library Commissioners have received six designs for their proposed public library to be erected adjoining the Vestry Hall in Walworth-road, the drawings for which are now on view at the Hall. Mr. Rowland Plumbe, F.R.I.B.A., was appointed assessor, and has awarded the first premium of £75 to No. 3, by Mr. E. B. I'Anson, of Laurence Pountney Hill; the second premium of £40 to No. 2, by Mr. Sidney R. J. Smith; and the third premium to No. 6, by Mr. John Bull, of Craven-street. The first premiated design, by Mr. E. B. I'Anson, represents the lending library, which is in most general request, in the front, on the left side of the entrance corridor. The latter is placed on the southern side, with the boys' reading-room, a narrow apartment between it and the southern boundary. Opposite the boys' room and in a central position on the other side is the borrowers' lobby, a square space taken out of the lending library, which occupies an area of 56ft. by 27ft. This central space is rather badly lighted; the glazed partitions will not much contribute to the lighting; and, although there are two good skylights over the front part of the library, and a window lighted from an area behind, the portion where light is essential does not derive much light from them. Over the whole area of lending library, except the front portion, the reference library is placed on the upper floor. Continuing our remarks on the ground floor, the main corridor leads to the news-room, running transversely, at a slight angle in the rear, a long apartment 66ft. by 23ft. A librarian's office is got between the lending library and news-room, lighted by a small side area on the north side, and the main staircase and staff stairs are well located at the end of corridor. One advantage of the plan is that the lending library can be closed, or separated from the other departments if necessary—a point that does not seem so absolutely desirable as the assessor has made it, though the requirements in this instance may make it essential. The boys' room is also under the supervision of the staff, being just opposite the borrowers' lobby. The author shows his magazine-room above, which is rather objectionable, though it is well approached from stairs. The reference library forms the front first-story room, and is placed transversely, 51ft. 6in. by 31ft., with two centre bay windows, with bookcases arranged to form alcoves. The librarian's staircase and counter are well placed. A gallery is shown round the reference library which is 20ft. in height, the other departments being 15ft. high. The second floor has the librarian's rooms, and the third floor the attics. The elevations are poor; the façade has a crowded effect in the fenestration; the centre is pronounced by a flatly-treated ornamental gable, and the projecting lower story, covered by a flat, is hardly satisfactory. The side elevation next vestry hall presents a rather meagre appearance; the gabled blank wall is relieved by pilasters. Red brick and stone are used. The heating is by hot-water radiators. The assessor thinks the design can be erected for the sum named. A perspective drawing is sent in, but it does not show the setting back of the building.

Mr. Sidney Smith's design is well planned as a whole. The lending library, 40ft. by 37ft. 6in., is in front on the left side of a wide entrance lobby, which is located on the south side. Next it in the centre comes the news-room, 40ft. by 37ft., mainly lighted by a skylight on the south side; and in the rear, forming a transverse block, are the magazine-room and boys' room, 43ft. by 23ft. 6in. All these departments are well approached and lighted; the side hall and corridor are of good width. The areas are given. A glazed partition is shown between lending library and news-room. The staircase arrangement is spoilt by its right-angle turn. The upper plan shows the reference library (with gallery) placed along the north side of boundary, 60ft. by 25ft., the south outer wall being carried by girder and columns over the news-room, and a large skylight obtained by this means on the south side for lighting the latter. The magazine block is low-roofed, and has a long, ridge skylight. The librarian's room is over the entrance hall. A well-drawn section and sheet of details of the fittings are sent. The least satisfactory part of the design is the elevation, shown by a clever ink sketch, which represents a brick building relieved by stone. There is a gabled end to the front on the north side, the windows look small, and the treatment is too domestic in character.

The third design, No. 6, has a more architectural arrangement of plan than either those named. Mr. Bull shows a good side entrance on the south side; a magazine-room, 38ft. by 26ft., in front, separated by a glazed partition from a lending library, 39ft. 3in. by 38ft. 4in., in the centre; with a lobby for borrowers the whole length; a boys' room with bay window, lighted on the north; and, lastly, a news-room, 66ft. by 23ft. The space for borrowers in this plan is spacious, and the counter well shaped; but being a passage-room to the boys' and news-room behind, the assessor has disqualified this plan from taking a higher place. A more cogent objection to it is the lighting of lending library, which appears inadequate, by the expedient to obtain light above the ground-story flat. The elevation, in a Renaissance style, with high curb roof and centre gable, has large windows. The centre has a flat bay to reference library under an arched recess; the front is relieved by stone pilasters and dressings in red brick. A bold perspective is sent.

One of the cleverest elevations is that of No. 4, by Mr. Ernest Runtz, shown by a pencil perspective in a freely-treated Renaissance, with some Flemish characteristics. The entrance on the north side is pronounced by a cupola over the vestibule of ground story, and the angle of main building has an octagon turret crowned by a spirelet. The ground-story windows of magazine-room, which is in front 38ft. by 25ft., is lighted by mullioned windows of Gothic character, with ogee heads, and the upper stories have windows of Flemish Gothic design, wide square heads, with recessed panelling between the stories; the mullions continued through the two openings. A high roof crowns the building. The lending library is made the centre room, 52ft. 6in. by 30ft. There is no partition to shut off the corridor from it, which therefore makes it a passage to the boys' and news-rooms behind. We do not like the arrangement of counter in lending library, nor the staff stairs, which is open to the library on one side, and the general plan is not cleverly worked out. A gallery is shown round lending library. The librarian's rooms are in the rear on first floor. On the first floor over lending library is the reading room with a galleried reference library above. The sections and details of front of bookcases are carefully drawn. Radiators are shown along the walls. The north flank side next vestry hall is cleverly treated by panelling, and the building stepped to obtain the angle of light to rear premises.

No. 5, by Mr. Frederick H. Powell, of Kennington, has entrance at north end of front with boys' and librarian's rooms in front, a lending library 40ft. by 38ft. in centre, with borrowers' lobby independent of corridor, and behind a news and magazine-room side by side, these being roofed low with skylights. The lending library is poorly lighted, partly by a skylight over east end, and by a small court; it is also small in superficial are The reference library above the lendi library is placed transversely; a file-room obtained in the rear on south side. T elevation, in brick and stone, has Renaissar features, two gables with corner octagon b terminated at roof-level by a cupola. V do not like the square ground-story window those of first floor look meagre. Had t author studied the sizes of the rooms r quired, this plan would have stood better the competition.

One set of designs, those by Mr. E Marsland (No. 1), has been removed fr the walls—we understand because they disqualified by the assessor for some mer technical non-observance of conditions, a therefore we have not the opportunity comparing them with the others. T course is unjust, at least to that gentlem to other competitors, and to the public. M Marsland places his lending library behi the news and magazine-rooms. His desi has been rejected, as we hear, on pur technical grounds—that he had not suppl a perspective, and ½in. scale drawings fittings, and that he had not observed angle of the side light on the south si These are surely insufficient reasons removing the drawings, and apprising public by a printed notice of such remov and we can only justify the proceeding believing that the Commissioners w ignorant of the usual course genera followed, and were not actuated by a other motive. We may mention that angles of light in the rear and at the s were conditions of the competition, and t no windows at the side of library facing vestry hall should be introduced. Th conditions have not been favourable t pleasing grouping of the departments. No for instance, has a very awkward piling of several stories in the centre, owing to necessity of observing the angle of lig The back buildings have, for this reas been kept only one story high. The Bui ing Act regulation also, which requires building line to be set back in front towa Walworth-road, has imposed the neces of having only a one-story front ro covered by a flat—a condition certai which is difficult to deal with architectura and only one author has treated this in artistic manner. We may add that outlay contemplated is not to exceed £7,

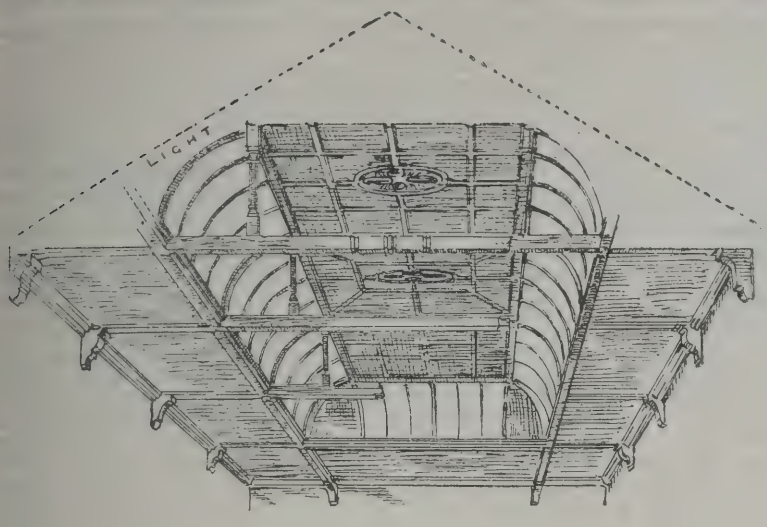
FREE PUBLIC LIBRARIES—XVI

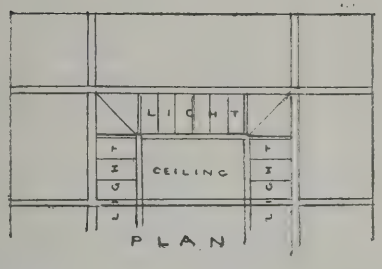
ROOFS AND SKYLIGHTS.

CONTINUING our remarks on the t lighting of news and reading-roo we promised to show a few arrangement hipped skylights. We may observe th are two methods of construction: one of th is to make the skylight the outer roof—t is, the bars become as it were the act rafters with glazing between, as in an ord ary outer skylight; the other method is construct an outer roof with lights, as as an inner ceiling—that is to say, there i outer and an inner set of lights. There certainly some advantages in having outer roof and an inner ceiling; the war of the room is better retained in winter, the sun is less piercing than it woul under a glazed roof as the only cover Of course in the latter kind of r such as we illustrated on page *ante*, outer or inner sun-blinds necessary in hot summer weather, during cold weather an unpleasant condes tion might be experienced, besides a ra conduction of the heat of the room, wh would necessitate increase of heating pow

DOUBLE ROOFS.

On these grounds we should always pr a double roof having the outer cove separated by a space from the ceiling. have shown several kinds of roof of





l, and we now give a sketch of one of the forms of roof and ceiling. The simplest n would be an ordinary king-post ceiled below the tie-beam with flat ng lights let in an intervals between the cipals, the ceiling joists being trimmed that purpose, with rough skylights out- . But a little extra material and ur would suffice to make an open and dsome roof internally by substituting ueens" for "king-post" and struts, oducing a collar or straining-piece veen the queen-posts at the top, and ning coved lights springing from the tie- n as shown in sketch. In this case exposed timbers would be wrought and lded, or chamfered. The flat, upper ng under collar could be either plastered eiled in wood and relieved by panels, the e treatment being adopted in the soffits lat portion on each side between the ved lights and the wall. There would s be an air-space left between the outer and the inner lights, and also below the e, which would enable a more equal perature to be retained in the room.

TREATMENT OF CEILING.

Hardly less important is the appearance of ceiling internally. Additional height is en to the room by this form of roof of 4ft. or at least—a valuable consideration when height of a story is limited, and certainly itting of better ventilating arrangements carrying up a shaft with an air-pump tilator above the ridge. By planing the beam and queen-post, and chamfering grooving them to form anulets, as cated in our sketch, an architectural sh may be given to the timbering. The t effective plan is to expose the lower ions of the tie-beam between the level ing or the boarded portions, by which ns the flat surfaces are broken into els and can be subdivided by smaller ribs lesired. The whole of the timbers can be ated appropriate shades of colour or be stained and varnished. The curved ribs ning the glazed coves should be moulded rnally, and a wider rib placed at each cipal rafter, also at lesser intervals veen the bays. The glass would have to be made expressly to the curve, and may be of ornamental kind with patterns impressed or "chequered" on it, or the patterns produced by brilliant cutting on obscured surface, or coloured or stained glass might be used if the lighting allowed of it.

RAISED LANTERN ROOFS.

Another variety of open roof of similar framed construction is in having a raised lantern in the centre above the collar level, the queen-posts in which case are continued above the roof, and are framed into a separate span roof above the lower roof. Between these uprights and rafters glazed lights are introduced. In this case, the lower coves are ceiled, or are divided by ribs into panels. Very pleasing decorative ceilings of this class are to be found over many of the recent libraries, and there is a good example over the lending library of Derby Library and Museum. We will give a few other examples in our next article. No doubt more direct light is admitted by the lantern; but this type of open roof has less to commend it than the internal light arrangement we have shown.

THE ARCHITECTURAL ASSOCIATION.

THE inaugural meeting of the new session of the Association was held on Friday evening at 9, Conduit-street, W., and was largely attended. The President, Mr. Frank J. Baggallay, occupied the chair. The report and balance-sheet for last session were adopted, without discussion, on the motion of Mr. Hampden W. Pratt and Mr. Leonard Stokes, ex-president. A long list of donations towards carrying out the new Educational Scheme was read by Mr. E. S. Gale, hon. sec., and also a list of donations to the library, and a vote of thanks to the various donors was proposed from the chair and carried by acclamation. Messrs. R. A. Jack, W. G. Watkins, and P. J. Hanson were elected as members, and 57 nominations for membership were read, the announcement of the number at the close of the reading of the long list being greeted with hearty applause. The President stated that under the new constitution any member of the committee who should accept a paid office must retire, but would be eligible for re-election. In accordance with that rule, Mr. F. W. Farrow, the senior vice-president, had ceased to hold that office, having been appointed a lecturer. At the next ordinary meeting the committee would nominate a member to fill the vacancy.

The President having distributed the prizes for the past session in accordance with the list published in our issue of the 9th inst., p. 499, proceeded to deliver his

INAUGURAL ADDRESS.

In his opening remarks Mr. Baggallay referred to the changes that have been made in the character and aims of the Association, pointing out that the four central ideas have been—first, to substitute a series of classes arranged on a comprehensive systems, for the old classes all independent of one another, with a view to conducting students through a regular course; secondly, to substitute a single responsible teacher or lecturer in most cases for a group of voluntary instructors, with a view to making the instruction more consistent, consecutive, and effective; thirdly, to fill up gaps and make the course complete; and, fourthly, to provide a place in which students could make their drawings and designs under the superintendence of competent instructors, with the advantage of their advice while at work, instead of only hearing their criticisms when it was completed. With these objects in view, the regular curriculum of study has been drawn up, and lecturers and instructors have been appointed to the various classes. It is almost unnecessary to add, continued the President, that, in many cases, the task has been undertaken out of pure goodwill to the Association, or to the cause of architectural education. To afford the accommodation for drawing and designing, and also to provide proper classrooms, new premises at No. 56, Great Marlborough-street have been rented, where a library and reading-room, two classrooms, and two studios have been fitted up. The increase in the secretarial work of the Association, involved by these fresh arrangements, has necessitated the appointment of an assistant secretary at a salary. The fees to be paid by students are, of course, large as compared with the old nominal class fees; but from all other points of view they must be acknowledged to be exceedingly moderate. At the same time, it is calculated that all expenses for instruction, and the increase in rent and other expenses involved by the change, will be paid by these fees if twenty-five fresh members take up the course each year, and pass steadily through the four years, or if there is an equivalent attendance in other ways. These arrangements, although they leave many important branches of our work untouched, a circumstance which has sometimes been overlooked, represent a revolution in our system of education, which must always remain our chief object. Those who have watched closely the position and work of the Association, and the advance of architectural education in recent years, cannot but have observed the gradual approach of the time when some such change would be absolutely necessary, unless, indeed, we should be satisfied to sink into insignificance, or become a mere social body. Our classes had become too numerous, and some of them too unwieldy to be managed in the old way, and the technical training of architects had become too serious a matter to be undertaken in other than a serious spirit and systematic manner. This has now been effected with the sanction of the general body of members, and, whether for good or ill, we are launched upon a course which most of us believe is destined to lead the Association into a position of influence and usefulness very far in advance of even that which it has hitherto occupied, but which may prove at the outset one of some danger and difficulty. It is not easy for me to indicate precisely where the danger or difficulty may appear, nor do I wish to anticipate anything of the sort. But when we think of how small a reserve of funds—notwithstanding the generosity of our friends—the Association has to fall back upon, it is impossible to feel that we are safe in that direction. Then, again, it would be strange also if all the arrangements for the future, made with immense labour and anxious care, but still under pressure of time and necessity, and without the data which experience alone will provide, were found to be faultless, or to work in every respect perfectly satisfactorily. Again, it would be almost as strange if such changes as have been effected had been brought about entirely

without injury to some individual interests, for any considerable reform in an old-established society must, almost inevitably, at the moment, produce a small crop of grievances. The fact that the curriculum course extends over four years has been much criticised, as too long or too short a period; but consideration of the differences in ages and qualification existing among those who will probably avail themselves of it will show that there are sufficient grounds for the arrangement made. We cannot expect that all who take up the course in the first, or any year, will go through all the subsequent years. We must be prepared always to find a rather larger number of students working in the earlier years than in the later ones, just as hitherto our elementary classes have always been the better attended. We may, however, fairly expect that a considerable number, probably a large majority, of members will see the advantage of working steadily through the four years' course. The number of students who have taken up the course, or parts of it, already is quite as large as one could reasonably have expected to begin with, and the number increases every day. By far the largest number (43) have entered as "first year" students, while 19 have entered for the second, and 18 for the third session. If most of these work steadily through the four years' course, and if about the same number enter each October, there can be no doubt whatever that in the estimated three years' time, or even sooner, the full number expected will be reached. Judging by the attendances up to the present time, the studio appears to be a very popular part of the new arrangements. Another most encouraging circumstance is that, in many cases, the fees appear to be paid by the principals for their pupils. Perhaps the greatest encouragement we have received is from the fact that the Institute of British Architects has passed a resolution pledging itself to afford us pecuniary assistance, and instructing its council to consider and decide in what manner and to what extent such assistance shall be given. The premises which we have been so fortunate as to secure, though a little small, are in all other respects admirably suited to our purposes. Funds are still much needed to meet the heavy initial expenses, and the deficit on account of the classes which there must be this year, and which there will probably be for one or two years to come. Notwithstanding the generous donations we have received, the £2,000 we asked for has not yet been half subscribed, and we cannot rest content without the full amount. A much larger sum, which could be treated as capital or as reserve, is indeed needed before the Association can consider itself in a perfectly secure and satisfactory financial position. But pressing as the financial question is, it is not so pressing that it should exclude from our minds the grave responsibility we have assumed towards those who will intrust their technical training to us, and, indeed, towards the whole of the architectural profession. Although we have from the first held classes, and have for some years given lectures, and done a good deal of serious teaching, we have never before professed to do the greater part of it in other than a semi-amateur way, and have never pretended that the Association course was anything like a full or sufficient complement to the practical training of office work. Indeed, private study, especially in certain directions, will be as necessary as ever; but as regards such technical training as lectures and classes can give, students and the profession will now have a right to expect our course to be complete and efficient. We cannot justly refuse to accept this responsibility, or to strive earnestly to fulfil the duties of the position we have assumed, by making our teaching as complete and as efficient as the most strenuous efforts and most watchful care on our part can make it. Architectural education has been the subject of much that has been said and written in recent years, and there are almost as many opinions as there are writers and speakers. The theories recently published need not trouble our minds very much, or cause us to hesitate in what we are doing, even if it does not fall in exactly with any of them. The fact that apprenticeship has an immensely strong hold upon the profession, and that, notwithstanding its many abuses, it is, on the whole, a good system, with many advantages, makes all talk of superseding it useless for the present; but it is beyond a doubt that apprenticeship is not, as regards architecture, so all-sufficing in the latter half of the nineteenth century as it once was, and that there is a real and urgent call for something in addition. On this ground the Association has always taken its stand, and does so still; we aim no blow at pupilage, but we desire to provide means whereby the necessary knowledge and training, not to be obtained in the course of office work, may be accessible to those who join us. Among these means, classes and lectures, and our newly instituted drawing and designing school or studio, are not the only ones, although they are, perhaps, the most important. The President having referred in detail to the library, now the largest and the most nearly complete architectural lending library in the kingdom, to the system of visiting works in progress, to the annual excursion, to the Sketch Book, and to the fortnightly meetings, as auxiliaries of no slight value, and reverted to the classes, suggesting that as soon as opportunity permitted a little workshop practice should be added to the curriculum. The bringing up of an architect as a craftsman, which some now advocated, involved the risk of narrowing the thoughts and ambitions of students, and of further exaggerating the faults which were already too apparent in architecture—the sacrifice of breadth and largeness of conception to mere littlenesses and prettinesses. For all that, he would suggest that some day they ought to give students the opportunity of a little workshop practice, say, at least, in joinery and metal-work, not with any idea of making them skilled mechanics, but to show them, in the most practical way, how wood and various metals can be dealt with. At present there were no time, no accommodation, and no money for this branch. As regards day classes, the President added, they have not been forgotten; but the practical difficulties in the way have led to their omission from our present programme. Meanwhile the studio, as a beginning, is to be open all day, and some few students have already intimated their intention to use it, either every day, or on certain days in the week. Besides the financial help already promised, there are two ways in which the Institute might possibly be able to assist us very materially at the present moment to make our new classes useful and popular. The first is this: I do not know if there is any especial reason for holding the Institute examinations in March or November; but it would be a great advantage if the date of one or both examinations could be altered so that one should fall in June, after the conclusion of our course. The other way in which the Institute could help us would be by a declaration that up to and including the first qualifying examination for the Associateship after the end of May, 1893, candidates for that examination would not be required to have passed the intermediate examination. I should fail in my duty to those of you who are on the threshold of the architectural profession if I failed to repeat the warning so often given on these occasions, by asking each of you to consider well before you go too far, and to turn back, if necessary, before it is too late. Architecture as a profession has far more attraction for the romantic ambitions of youth than for the soberer sense of middle age. I ask you to remember this, and to make allowances to yourself for it, before you finally decide upon going forward. If you have the artist's love for art or his pride in the creations of his own imagination, and, to gratify this feeling, are satisfied to lead a life of self-denial, of incessant labour and worry, and disappointment, you will, if moderately successful, find the life of an architect not only bearable but happy. But if you wish for fortune or for public fame, believe me, you can win neither among us. If you are determined to go forward, remember the saying of the Hebrew King: "Whatsoever thy hand findeth to do, do it with thy might." Do not trouble yourself with unnecessary conundrums as to whether architecture is an art or a profession. Do not dub yourself either an "artistic man" or a "practical man"; but be satisfied to be merely an architect, armed at all points, able to devise a building beautiful to the eye and adapted in all ways to the purpose for which it is required, and equally able to get that building erected without its costing more, or taking longer to build, than it should do. Before you can do all this you have years of hard study before you. You have your eye, your mind, and even your hand to train. You have a number of facts to assimilate and certain habits to form, without which you would almost certainly get into difficulties that wo overwhelm you. Begin by devoting considera time to learning to draw well and rapidly, not o with the aid of a drawing board and T-squa but especially without any other aid than a pi of paper and a pencil. Until you have obtai the mastery of your pencil you will find seve of the most delightful and useful avenues study closed to you. At the same time, for drawing is only a means to an end, and not end itself. Meanwhile, cultivate your sense the beautiful by as frequent a contemplation beautiful objects—especially architectural obj —as you can compass. Strive to stimulate y inventive faculties and your powers of refl tion and original thought by setting your problems, and endeavouring earnestly to find true solutions of them. Do not neglect to st your mind with all facts which may be of us you. Visit buildings in progress and worksh whenever you can, watch the men, examine materials, question the foreman, ascertain usual way of doing certain things, a if possible, why they are so done, take all opportunities of comparing drawings and the specifications of a building w the work on the spot, in order that you may better understand the connection between actual work and the representation and desc tion of it. Make yourself acquainted, too, w the business of the office in which you engaged, and with the manner of conductin Finally, do not fail to test your progress means of the Institute examinations. If yo all this you will, in a few years, become a c petent architect's assistant; and if you perse in the same course for a few years more, you then venture to undertake any little work your own account with which you can get a one to intrust you; but do not be in a hurr practise for yourself, for many a man has ru his prospects by this fatal step. While stri to perfect yourself as an architect, do not, as value your peace of mind, your reputation, even your success, neglect your character man; cultivate courage and energy, pe verence and patience, and keep in mind the quoted advice of the late Professor Cockere be "an artist among gentlemen, and a ger man among artists." In conclusion, if would reap the full benefit of your member of the Association, identify yourself with work, and be ready to exercise a little self-de for the general good. This is the spirit w has animated the Architectural Associatio the past, and this is the spirit which must mate it still. If you act in this spirit, you never regret it, but will rather consider honour and pleasure of having helped in su work so great that you will say what I say from my heart—namely, "I owe more to Architectural Association than I can ever to repay."

Mr. MacVicar Anderson, P.R.I.B.A., posed a vote of thanks to the President for able and interesting address. The great pro that had been made in late years by architec education was largely due to the self-sacrifi efforts and energy characteristic of the men of the Association. They had now entered new departure. Some had criticised the c culum as very wide and diffuse; but those did so forgot what an architect really was. was a sort of hybrid animal, an artist, scie and man of business at the same time, and h his education must be wide and diffuse i nature. The advice given by the President admirable, and the only point to whic ventured to take exception was his warning as a profession, architecture had far mor tractions for the romantic ambitions of y than for the soberer sense of middle age. thought Mr. Baggallay was scarcely, as yet, petent to judge on this matter; but, speaki one who had reached maturer years, he assure him that he had not found the profe less attractive. Nor could he agree with President that there were not many within the reach of architects. As to the dent's suggestions of ways in which the Inst could help the Association, Mr. Baggallay member of the Council of the Institute, w receive an attentive hearing if he would his proposals before them. The functions o Association and Institute were different, th being largely a teaching, the other an exam body; but their united efforts could not fa considerably elevate the status and dignity o profession.



INTENDENCIA, VALPARAISO.





A PRIVATE RESIDENCE, BUENOS AYRES.



STATUE OF GENERAL O'HIGGINS.

SKETCHES FROM CHILI.

Professor KERR seconded the vote of thanks, marking that the address had been able, oquent, and useful in character. It was very markable that the work which had been, and s being, done by the Association should be complished by the students themselves; he ew of no other instance of a successful endea- ur of the kind. The reflection occurred what s to become of all the 1,200 young members the Association; was there room for all of em as architects? His theory was there was t; but that many would drift off, not into the nks of the painters in oil or water-colours, but ther into the subsidiary and auxiliary arts, here he believed their training and education uld enable them to execute work far in advance the ordinary designer of the furniture and holsterer's shop.

Mr. ASTON WEBB said his inspection of the assrooms and studio at Marlborough-street gave e impression that the rooms and appliances ere excellently adapted to their purpose. His perience had been that where principals paid e pupils' fees less interest was taken in the asses than when the youths themselves found e money.

Mr. LEONARD STOKES put to the meeting the otion, which was carried by acclamation, and e PRESIDENT briefly responded.

SKETCHES FROM CHILI.

WE published a few weeks ago* several drawings of some modern buildings ected in the Argentine Republic, and to-day, contrast with these illustrations, we give some etches, from the able pen of Mr. George C. orant, which show a few typical specimens of e more historic architecture of South America.

* BUILDING NEWS, Oct. 2nd, 1891.

Mr. Morant's knowledge of Spanish, and long acquaintance with the subject of his book,* inspire at once a confidence as to the accuracy of his concise and graphic accounts of the towns and villages visited and described. After touching Lisbon, and passing some places on the coast of Brazil, the traveller was unable to embark at Rio de Janeiro on account of an outbreak of yellow fever there. Having thus avoided the perils of the plague, the delay of quarantine, and escaped the penalties of the lazaretto at Flores Island (the quarantine station at Monte Video), later on the River Plate was reached, and a start made for Buenos Ayres. Here interminable delays, occasioned by the Customs authorities, and the safeguards so rigidly taken to prevent risk of infections, formed the subject of a series of experiences which made an exceedingly bad ending to an otherwise enjoyable voyage. The majority of houses in Buenos Ayres consist of the ground floor only, and more particularly is this the case in the outskirts, although towards the heart of the city many buildings are to be found with upper floors. The increase in the value of the central sites of the town will, no doubt, before long lead to loftier buildings being put up. These dwellings are of the old Spanish type, with an extensive *patio*, or inner courtyard, thus covering individually a considerable space of ground, and collectively forming a city of vast extent as compared with the population. The hotels, the *casas amuebladas* (furnished houses), and restaurants are all described by Mr. Morant, who does not seem to have been greatly impressed by the *plazas* (open squares), or with the cathedral in "Plaza Victoria," a plain building without any special features. The banking houses of the town are the best buildings, and often, it seems from all accounts, are more substantial in their fabrics than the money reserves which they contain. The sketch which we print shows a typical residence of the better class. La Plata is pre-eminent for its public buildings, and before leaving Buenos Ayres our author did well to pay the capital of the province a visit. The beautiful gardens there are adorned with statuary and handsome trees. Forming the great square are the courts of justice, the Government House, Public Library, Police offices, the National Bank and the great Opera House standing in several acres of ground. The whole of these works seem to have been conceived in anticipation of increased requirements, and thus, strictly in accordance with Argentine principles, enormous liabilities were incurred in their erection, without considering from whence ultimate payments were to be obtained. Not being able here to follow the writer over the "camp," by which term the vast pampas or prairies of the Argentine Republic are known, we will pass on briefly to the further subjects of his pencil. Rosario is essentially a dull and uninteresting place, although English is as much spoken there as any other language, and the town is the head-quarters of the Central Argentine Railway. South America, however, is altogether unsuited to British emigrants. The towns are already filled with young men who have learned no handicraft. No occupation as clerks is open to them, and consequently menial labour of any kind has to be resorted to. The "camp" is only suited to those capable of the roughest kind of work, and who have no objection to associate with Indians of the lowest types. The advice given by Mr. Morant to those thinking of emigrating to the River Plate is, "Don't." Argentine finances are beyond our scope; but we have read with interest the descriptions here given of Valparaiso and Santiago. The Intendencia at Valparaiso forms the subject of the second illustration, and the third is of a statue to General O'Higgins, about which no informa-

* Chili and the River Plate in 1891. By CHARLES C. MORANT. London: Waterlow and Sons, Limited.

tion is afforded. Lima Cathedral forms the last subject of our illustrations. Mr. Morant says of it: "The world-renowned cathedral has a particularly shabby appearance both inside and out, and the iron crosses on its towers being much out of the perpendicular, the general effect is not a favourable one." The interior is adorned with hideous and tawdry figures carved in wood and painted in gaudy colours. Some are covered with tinsel and cut paper ornaments. Thus bedecked they match the threadbare altar coverings over glazed calico frontals. The head of the Saviour bearing His cross was provided with hair of dyed tow, which hung over the face and was plentifully decorated with "yellow marguerites"! The hospital at Lima is a good building, and the town is set out on the old Spanish block system.

PRICES.—XX.*

(All Prices Include Profit).

CARPENTER (*continued*).

		£	s.	d.
Wainscot Oak (continued)—				
2in. rough, including waste	per foot super.	0	2	3
Ditto ditto labour and nails	ditto	0	2	7
Ditto ditto ditto screws	ditto	0	2	9
Add if wrought one side	ditto	0	0	2½
Ditto ditto two sides	ditto	0	0	5
Ditto glue blocked	ditto	0	0	2
Ditto framed or clamped	ditto	0	0	9
Ditto if mitre clamped, *add*	ditto	0	0	3
Ditto keyed on back	ditto	0	0	8
Ditto dovetailed	ditto	0	0	10
Ditto ploughed and tongued	ditto	0	0	2½
Ditto cross-tongued	ditto	0	0	3
Ditto beaded each side	ditto	0	0	1½
Ditto if in wide widths	ditto	0	0	4
Ditto if scraped, for each side	ditto	0	0	2
Ditto training flaps to counters, hung complete, *extra*	ditto	0	0	10
Tongued heading joints	ditto	0	0	6
1½ by 3 moulded edging screwed on	ditto	0	0	10
2 by 3 ditto ditto	ditto	0	1	2

American Walnut.

Price this at the same as wainscot oak; the labour also is about the same.

In either of the hard woods already given, exceptional wood must be paid for at a higher rate, and in all cases boards beyond 12in. to 15in. wide are of extra value; beyond 24in. and in long lengths the wood gets scarce.

A good deal of American walnut now imported is small and sappy, and the cut stuff unfit for any good work.

The weight of hard woods must be borne in mind in estimating the cartage from docks to mills and back to the shops.

Take all labours not given, at twice those in deal, for Honduras mahogany, three times for Spanish mahogany, and twice for wainscot oak.

STAIRCASES.

		£	s.	d.
1½in. rough treads housed to strings, and chamfered on edge, no risers or carriages	per foot super.	0	0	7
Ditto rounded	ditto	0	0	8
1½in. ditto chamfered	ditto	0	0	8
Ditto rounded	ditto	0	0	9
2in. ditto chamfered	ditto	0	0	9½
Ditto ditto rounded	ditto	0	0	10½
1in. deal wrought and rounded treads and risers, glued block and bracketed on, and including fir carriages	ditto	0	1	2
1½ threads, 1in. risers, and ditto	ditto	0	1	2½
1½ ditto 1½in. ditto	ditto	0	1	3
1½ ditto 1in. ditto with moulded nosings	ditto	0	1	3
Ditto in winders	ditto	0	1	5
Add if cut outer strings	ditto	0	0	1
Add if risers are rebated and grooved to treads	ditto	0	0	1
Add if in picked deal	ditto	0	0	1
1½in. treads, 1in. risers	ditto	0	1	4
Ditto in winders	ditto	0	1	6
1in. risers to landing	ditto	0	0	7
1½in. ditto	ditto	0	0	8
⅔in. wrought and beaded apron lining	ditto	0	0	6⅔
1in. ditto ditto	ditto	0	0	7
1½in. ditto ditto	ditto	0	0	7½
Housing ends of risers	each	0	0	2
Ditto ditto treads and risers	ditto	0	0	4
Ditto ditto ditto to winders	ditto	0	0	6
Moulded nosings to return ends of steps, mitred and glued on	ditto	0	0	6
End of winders cut circular, and pieces of circular nosing worked and glued on, or worked on solid	ditto	0	1	3
Bull-nose ends to steps, veneered	ditto	0	7	0
Quadrant ditto ditto	ditto	0	3	6
Curtail steps ditto	ditto	0	10	0
Cut brackets worked and fixed on ends of steps	ditto	0	0	9
Ditto circular	ditto	0	2	0
Pitch-Pine, ditto—				
1in. treads, 1in. risers, moulded nosings, glued, blocked, and bracketed on, and including 2 fir carriages	per foot super.	0	1	4
1¼ treads and ditto	per foot super	0	1	5
1⅛ ditto ditto	ditto	0	1	6
Add for winders	ditto	0	0	2½
Add if 1½ risers	ditto	0	0	1
Add if selected wood	ditto	0	0	1
1in. risers to landing	ditto	0	0	8½
1¼in. ditto ditto	ditto	0	0	9½
⅔in. wrought and beaded apron lining	ditto	0	0	7½
1in. ditto ditto	ditto	0	0	8½
1¼in. ditto ditto	ditto	0	0	9½
Housing ends of risers	ditto	0	0	2½
Ditto ditto treads and risers	ditto	0	0	5
Ditto ditto ditto winders	ditto	0	0	7
Moulded nosings to return ends of steps, mitred and glued on	ditto	0	0	8
Ends of winders cut circular and moulded on the solid, including mitre	each	0	1	6
Quadrant end to step	ditto	0	4	6
Bullnose end to step, veneered	ditto	0	8	6
Curtail ditto ditto	ditto	0	12	0
Cut brackets worked and fixed on ends of steps	ditto	0	1	0
Ditto circular	ditto	0	2	6
Wainscot Oak: Treads, &c.—				
1½ moulded treads, 1in. risers mitred and cut for cut outer strings, glue blocked, bracketed and with two fir carriages	per foot super	0	3	0
Ditto in winders glued up and cross-tongued	ditto	0	3	6
Add if scraped for polishing	ditto	0	0	2
Return moulded ends	each	0	1	0
Circular ditto	ditto	0	2	0
Brackets moulded and glued on	ditto	0	1	9
Circular ditto	ditto	0	4	0
Quadrant ends, veneered	ditto	0	10	0
Bullnose ditto ditto	ditto	0	15	0
Curtail ditto ditto	ditto	1	0	0
Teak: Treads, &c.—				
1½ moulded treads, 1in. risers, mitred and cut for cut outer strings, glue blocked, bracketed and with two fir carriages	per foot super	0	3	3
Ditto in winders glued up and cross-tongued	ditto	0	3	9
Return moulded ends	each	0	1	3
Circular ditto	ditto	0	2	6
Brackets moulded and glued on	ditto	0	2	0
Circular ditto	ditto	0	4	6
Quadrant ends to steps and risers	ditto	0	12	0
Bullnose ditto ditto	ditto	0	17	6
Curtail ditto ditto	ditto	1	2	6
Strings, in Deal—				
1½ rough strings for open stairs	per foot super	0	0	5
Ditto ramped	ditto	0	0	10
1¾in. ditto	ditto	0	0	6
Ditto ramped	ditto	0	1	0
2in. ditto	ditto	0	0	7
Ditto ramped	ditto	0	1	2
2¾in. ditto	ditto	0	0	10
Ditto ramped	ditto	0	1	8
3in. ditto	ditto	0	0	11
Ditto ramped	ditto	0	1	9
In plain string, wrought	ditto	0	0	7
Ditto cross-tongued	ditto	0	0	8
Ditto moulded	ditto	0	0	9
1in. moulded and ramped	ditto	0	1	6
Ditto and writhed	ditto	0	3	6
Add for sinking	ditto	0	0	2
Ditto beading	ditto	0	0	1
Ditto cut outer string	ditto	0	0	2
1½ plain string	ditto	0	0	7½
Ditto cross tongued	ditto	0	0	8½
Ditto moulded	ditto	0	0	9½
1½ moulded and ramped	ditto	0	1	7
Ditto ditto writhed	ditto	0	3	9
1¾in. plain string	ditto	0	0	8
Ditto cross tongued	ditto	0	0	9
Ditto moulded	ditto	0	0	10
Add for ramping	ditto	0	0	10
Ditto writhing	ditto	0	3	0
2in. plain string	ditto	0	0	9
Ditto cross-tongued	ditto	0	0	10½
Ditto ditto and moulded	ditto	0	1	0
Ditto ditto ditto and ramped	ditto	0	1	9
Ditto ditto ditto and writhed	ditto	0	4	6
Ends framed to newels (averaged)	each	0	0	6
Heading joints with skirtings	ditto	0	0	6
Ditto circular with straights	ditto	0	0	9
Strings in Pitch-Pine—				
1¼in. plain strings	per foot super.	0	0	9
Ditto cross-tongued	ditto	0	0	10½
Ditto and moulded	ditto	0	0	11½
Add for ramped	ditto	0	0	11½
Ditto writhed	ditto	0	3	6
Ditto sunk	ditto	0	0	2⅔
Ditto beaded	ditto	0	0	1⅔
Ditto cut outer string	ditto	0	0	2⅔
Ditto rebating for lathing	ditto	0	0	1⅔
1½in. plain string	ditto	0	0	10
Ditto cross-tongued	ditto	0	0	11½
Ditto and moulded	ditto	0	1	0½
Add for ramped	ditto	0	1	0½
Ditto writhed	ditto	0	4	0
Ditto sunk	ditto	0	0	2½
Ditto beaded	ditto	0	0	1½
Ditto rebated	ditto	0	0	1½
Ditto cut outer string	ditto	0	0	2
2in. plain string	ditto	0	0	11
Ditto cross-tongued	ditto	0	1	1
Ditto and moulded	ditto	0	1	2½
Add for ramped	ditto	0	1	2½
Ditto writhed	ditto	0	4	6
Ditto sunk	ditto	0	0	3
Ditto beaded	ditto	0	0	1½
Ditto rebated	ditto	0	0	1⅔
Ditto cut outer string	ditto	0	0	2½
Ends of risers housed	each	0	0	2⅔
Ditto treads and risers	ditto	0	0	4
Ditto framed to newels	ditto	0	0	7
Heading joints	ditto	0	0	7
Ditto with circular	ditto	0	0	11
Strings in Wainscot Oak—				
1½in. plain string	per foot super.	0	2	
Ditto cross-tongued	ditto	0	2	
Ditto ditto and moulded	ditto	0	2	
Add for ramped	ditto	0	1	
Ditto writhed	ditto	0	3	
Ditto sunk	ditto	0	0	
Ditto beaded	ditto	0	0	
Ditto cut outer string	ditto	0	0	
Ditto rebated for lathing	ditto	0	0	
Ditto scraped for polishing, each side	ditto	0	0	
1⅝in. plain string	ditto	0	2	
Ditto cross-tongued	ditto	0	2	
Ditto ditto and moulded	ditto	0	2	
Add for ramped	ditto	0	1	
Ditto writhed	ditto	0	3	
Add for sunk	ditto	0	0	
Ditto beaded	ditto	0	0	
Ditto rebated	ditto	0	0	
Ditto cut outer string	ditto	0	0	
2in. plain string	ditto	0	2	
Ditto cfoss-tongued	ditto	0	2	
Ditto ditto and moulded	ditto	0	2	
Add for ramped	ditto	0	1	
Ditto writhed	ditto	0	3	
Ditto sunk	ditto	0	0	
Ditto beaded	ditto	0	0	
Ditto rebated	ditto	0	0	
Ditto cut outer string	ditto	0	0	
Ends framed (averaged)	each	0	0	
Ditto return moulded	ditto	0	0	
Heading joints	ditto	0	0	
Ditto straight, with circular	ditto	0	0	
Ends of risers housed	ditto	0	0	
Ditto treads and risers	ditto	0	0	
Ditto to long winders	ditto	0	0	
Teak, strings, &c. (selected wood)—				
1½in. plain string	per foot super.	0		
Ditto cross-tongued	ditto	0		
Ditto ditto and moulded	ditto	0		
Add for ramped	ditto	0		
Ditto writhed	ditto	0		
Ditto sunk	ditto	0		
Ditto beaded	ditto	0		
Ditto cut outer string	ditto	0		
Ditto rebated	ditto	0		
Ditto scraped for polishing, each side	ditto	0		
1½in. plain string	ditto	0		
Ditto cross-tongued	ditto	0		
Ditto ditto and moulded	ditto	0		
Add for ramped	ditto	0		
Ditto writhed	ditto	0		
Ditto sunk	ditto	0		
Ditto beaded	ditto	0		
Ditto rebated	ditto	0		
Ditto cut outer string	ditto	0		
2in. plain string	ditto	0		
Ditto cross-tongued	ditto	0		
Ditto ditto and moulded	ditto	0		
Add for ramped	ditto	0		
Ditto writhed	ditto	0		
Ditto sunk	ditto	0		
Ditto beaded	ditto	0		
Ditto rebated	ditto	0		
Ditto cut outer string	ditto	0		
Ends framed (averaged)	each	0		
Ditto return moulded	ditto	0		
Heading joints	ditto	0		
Ditto to straight and circular	ditto	0		
Ends of risers housed	ditto	0		
Ditto treads and risers	ditto	0		
Ditto to long winders	ditto	0		
Balusters in Deal, fixed complete—				
1in. square bar balusters, including housing at bottom and cutting and nailing to top	each	0		
1½ ditto	ditto	0		
Add for housing at top	ditto	0		
1⅜ ditto	ditto	0		
1½ turned, ordinary pattern	ditto	0		
Ditto Queen Anne	ditto	0		
1⅝ ditto ordinary	ditto	0		
Ditto Queen Anne	ditto	0		
2 ditto ordinary	ditto	0		
Ditto Queen Anne	ditto	0		
1½in. square turned Queen Anne	ditto	0		
1⅝ ditto ditto	ditto	0		
2 ditto ditto	ditto	0		
Add for pendants	ditto	0		
1 by 3 plancer, moulded both edges	per foot run	0		
1¼ by 3½ ditto rebated	ditto	0		
1½ by 4 ditto rebated	ditto	0		
Ends housed	each	0		
Ditto cut only	ditto	0		
Pitch Pine—				
1½ turned, Queen Anne pattern	ditto	0		
1⅝ ditto	ditto	0		
2 ditto	ditto	0		
1½ square turned	ditto	0		
1⅝ ditto	ditto	0		
2 ditto	ditto	0		
1 by 3 plancer, moulded both edges	per foot run	0		
1¼ by 3½ ditto	ditto	0		
1½ by 4 ditto	ditto	0		
Honduras Mahogany—				
1½ turned to design	each	0		
1⅝ ditto	ditto	0		
2 ditto	ditto	0		
1 by 3 plancer, moulded both edges	per foot run	0		
1¼ by 3½ ditto	ditto	0		
1½ by 4 ditto	ditto	0		
Wainscot Oak—				
1½ turned to design	each	0		
1⅝ ditto	ditto	0		
2 ditto	ditto	0		
1 by 3 plancer, moulded both edges	per foot run	0		
1¼ by 3½ ditto	ditto	0		
1½ by 4 ditto	ditto	0		

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		£	s.	d.
Newels in deal—				
n. wrought all round, and framed	per foot run	0	0	8
in. ditto ditto ditto	ditto	0	0	9
n. ditto ditto ditto	ditto	0	0	10
n. ditto ditto ditto	ditto	0	0	11
ngle turnings each	9d. to	0	1	6
rned caps	6d. to	0	1	0
rned terminals or pendants	9d. to	0	1	6
(The above prices include framing to floor; aming to strings taken separately.)				
op-chamfering all round, add	per foot run	0	0	6
ain cut tops	each	0	1	6
Newels in pitch-pine—				
n. wrought all round and framed	per foot run	0	0	10
in. ditto ditto ditto	ditto	0	0	11
n. ditto ditto ditto	ditto	0	1	0
n. ditto ditto ditto	ditto	0	1	2
n. ditto ditto ditto	ditto	0	1	6
n. single turnings	each	0	1	0
in. ditto	ditto	0	1	2
n. ditto	ditto	0	1	4
n. ditto	ditto	0	1	6
n. ditto	ditto	0	2	0
op-chamfering all round, add (Price terminals according to their height.)	per foot run	0	0	8
Newels in Honduras mahogany—				
n. wrought all round and framed	per foot run	0	1	6
in. ditto ditto ditto	ditto	0	2	0
n. ditto ditto ditto	ditto	0	2	6
n. ditto ditto ditto	ditto	0	3	6
n. ditto ditto ditto	ditto	0	5	0
n. single turnings	each	0	1	3
in. ditto ditto	ditto	0	1	6
n. ditto ditto	ditto	0	1	9
n. ditto ditto	ditto	0	2	0
n. ditto ditto	ditto	0	3	0
Newels in wainscot oak—				
n. wrought all round and framed	per foot run	0	1	8
in. ditto ditto ditto	ditto	0	2	2
n. ditto ditto ditto	ditto	0	2	9
n. ditto ditto ditto	ditto	0	3	9
n. ditto ditto ditto	ditto	0	5	6
n. single turnings	each	0	1	3
in. ditto ditto	ditto	0	1	6
n. ditto ditto	ditto	0	1	9
n. ditto ditto	ditto	0	2	0
n. ditto ditto	ditto	0	3	0
Newels, in Teak—				
n. wrought all round and framed	per foot run	0	1	10
in. ditto ditto ditto.....	ditto	0	2	4
n. ditto ditto ditto.....	ditto	0	3	0
n. ditto ditto ditto.....	ditto	0	4	0
n. ditto ditto ditto.....	ditto	0	6	0
n. single turnings	each	0	1	6
in. ditto	ditto	0	1	9
n. ditto	ditto	0	2	0
n. ditto	ditto	0	2	3
n. ditto	ditto	0	3	6
Handrails, in Deal—				
n. round	per foot run	0	0	6
by 3 oval	ditto	0	0	8
by 3½ moulded straight	ditto	0	1	0
itto ditto ramped	ditto	0	2	0
itto ditto level circular	ditto	0	3	0
itto ditto writhed	ditto	0	5	0
oints and handrail screws	each	0	1	0
rned caps for newels and mitring	ditto	0	1	3
on straps, and fixing with screws	ditto	0	1	3
Handrails in Pitch-pine or White Wood for aining—				
n. round	per foot run	0	0	8
by 3 oval	ditto	0	0	10
by 3½ moulded	ditto	0	1	2
by 4 ditto	ditto	0	1	6
by 4½ ditto	ditto	0	1	9
by 3½ ditto ramped	ditto	0	2	0
by 4 ditto ditto	ditto	0	2	4
by 4½ ditto ditto	ditto	0	3	0
by 3½ ditto level circular	ditto	0	3	6
by 4 ditto ditto	ditto	0	4	0
by 4½ ditto ditto	ditto	0	4	6
by 3½ ditto writhed	ditto	0	4	6
by 4 ditto ditto	ditto	0	6	0
by 4½ ditto ditto	ditto	0	7	6
Handrails in Honduras Mahogany, finished r polishing—				
n. round	per foot run	0	0	10
by 3 oval	ditto	0	1	3
by 3½ moulded	ditto	0	1	9
by 4 ditto	ditto	0	2	3
by 4½ ditto	ditto	0	2	9
by 3½ ditto ramped	ditto	0	3	0
by 4 ditto ditto	ditto	0	4	0
by 4½ ditto ditto	ditto	0	5	0
by 3½ ditto level circular	ditto	0	4	6
by 4 ditto ditto	ditto	0	5	6
by 4½ ditto ditto	ditto	0	7	0

HOT-WATER ENGINEERING.—XIX.

Supply of Hot Water for Baths and Domestic Purposes.

Sources of Danger — Faults and Remedies.

THE possible causes of explosions are limited to four—viz., frost, failure of water, stop-cocks, and incrustation. These are placed in their order of precedence. In the ordinary way we may consider an apparatus as being perfectly safe without a safety-valve, for so long as either the expansion-pipe or the cold-supply service remains open, an explosion cannot occur. In the usual way, of course, both these pipes are open; but if by any means one of them became closed, only inconvenience, and no danger, need be feared. Taking all things into consideration, however, it is a little surprising that more calamities do not occur, and undoubtedly there are frequent occasions that the range fire is lighted at a time that it is positively suicidal to do so, but fortunately there are many little things transpire to prevent an accident, even when everything is favourable for one to occur.

Speaking of frost, which is the most general cause of these disasters, it is necessary for the water to be frozen hard in both cold supply and expansion pipes, or if it is the tank system, the primary flow and return may be frozen also. With these pipes closed, a rupture must occur at the boiler (supposing no safety valve exists) when sufficient heat and subsequent pressure is developed. This pressure has to be very great, for the boiler and pipes are of great strength, and on this account the explosion becomes so fatal if anyone be near. As just mentioned, a fire may often be lighted at times when it is highly dangerous to do so, and yet no accident occur. It may happen in this way: supposing a severe frost exists in the night, and some part of the pipes spoken of are situated in the roof, or a similarly exposed position. This, if the pipes are not protected in some way, will result in the water being frozen, if the frost is severe, about three or four o'clock in the morning. The fire may be lighted at six o'clock; but now may happen two or three things. Firstly, if the quantity of ice be moderate, the water, as it heats up, may melt it, for there would be no danger for about the first half-hour. Secondly, a servant might go to a tap for water, and this would have a two-fold effect: it would relieve the boiler, and at the same time show there was something wrong; and there are other little occurrences that go to obviate the impending trouble. During the past severe winter there must have been many very narrow escapes, and it is somewhat astonishing so very few accidents occurred, particularly as a new source of danger—shortness of water—was so prevalent. This tells us forcibly that exposed parts of an apparatus (particularly in roofs) should be well covered with some poor conductor of heat, and, as so strongly urged in a previous paper, every part of the apparatus should be covered to prevent loss of heat, as this not only helps to give immunity from danger, but is a real source of economy in fuel.

The next source of danger is shortness of water—a failure in the water supply from some cause. This trouble carries no danger with the cylinder system, as, supposing the apparatus to be properly constructed, the cylinder cannot be unknowingly emptied, and only inconvenience can result. Of course, if the lack of water continued for two or three days, and the fire was kept going all this time, the contents of the cylinder and boiler might be evaporated, that is to say, boiled away; but it is hardly likely that a fire would be kept going this length of time after it was known that no water could be drawn from the apparatus, and it is still less likely that the apparatus would be allowed to remain without a supply of water for this length of time.

It is in country places in particular that shortness of water occurs. At residences where the water is pumped daily, and this done by hand labour, it not unfrequently happens that the supply runs short unexpectedly, that is, the house cistern is exhausted either by reason of a greater demand or the pumping having been insufficient. The cylinder system ought to be insisted upon in such places.

The way in which an accident occurs from this cause is as follows:—Supposing it to be an apparatus upon the tank system, and the water fails, we may suppose that the contents of the apparatus be withdrawn down to a tap at a low point. This leaves the boiler and a few feet of pipe full of water. This quantity, being small, will boil furiously, and quickly be evaporated if a brisk fire is kept, and after the water disappears the boiler will become red-hot. This is the time that a genuine danger exists, for should some water be supplied to the cistern and flow down into the boiler, an explosion of a terrific nature, wholly due to steam, will instantly occur. The instant that water entered the red-hot boiler it would be just as immediately converted into steam, and the two pipes from the boiler, supposing them to be both clear (water would be coming down the return) would be totally insufficient to relieve the boiler of the enormous force so instantaneously generated. An instance of this nature came under the writer's experience, but fortunately for two servants who were standing by the range at the moment, the boiler had a safety-valve. But such was the nature of the force that the valve did not merely open, but the top cap was forced out and curled up like paper. This is a danger that really cannot occur with a properly-constructed cylinder apparatus.

The next cause of accidents that stands in the order of precedence is stop-cocks. These, however, are only elements of danger when in the primary services both flow and return. If we put a stop-cock in either one of these pipes, but not in the other, there should be no danger, but there would be some very alarming noises and results generally. Occasionally an engineer will recommend putting stop-cocks in the primary flow and return of an apparatus, either tank or cylinder, the gain being that the whole apparatus does not need to be emptied of water when the boiler is opened for any purpose, and further than this, if the apparatus is charged with hot water, it can be drawn from and used, notwithstanding that the fire is out and a man is at work at the boiler. These are advantages certainly, and sufficient to recommend the practice under discussion were it not for the real danger it introduces.

A plumber lost his life quite recently when testing a boiler after he had cleaned it; he, in this case, having omitted to open the stop-cocks that existed in the primary services, and which he had closed before commencing work. This accident occurred to a practical man; therefore, how much easier for it to happen to a servant, who might consciously or unconsciously trifle with the taps, if they were conveniently at hand. Notwithstanding any convenience attained by the use of stop-cocks in primary services, it is better to omit them; the risks are too great.

The last cause of accidents to be mentioned is incrustation. This is a possible cause; but not a probable one by any means, and it is doubtful if an explosion has ever been due to it. There have been thousands of boilers fractured by an accumulation of deposit matter from hard water, but this fracture occurs without dangerous force or violence.

An explosion from this cause would be due to both flow and return pipes becoming choked with hard deposited matter—"fur"; so that the pipes became stopped just as effectually as they could be with stop-cocks. It would be quite possible for this to occur, and particularly if pipes be carried across a flue where great heat is felt. In this case the pipes become choked very quickly. The reason that an accident is so unlikely is that, as soon as the pipes become partly choked, and long before danger need be feared, there are alarming and very disagreeable noises and vibrations experienced; and eventually (yet still before there is danger) they become unbearable, and a workman has to be called in to remedy the matter. When pipes are very badly furred the violence of the noises and vibrations is noticed over the whole of the residence, so that before an explosion could occur, the other experiences would nearly drive the people out of the building. These noises, &c., are due to the resistance offered to the steam when it endeavours to escape. Usually, it is the flow-pipe gets most badly furred, then the steam has to find a passage up the return, causing a great commotion.

Faults and Remedies.

It would be an almost impossible task to enumerate all the faults that are to be met with in these works. The number is really enormous, and the list gets added to daily. It only comes within the province of this paper to describe a few of those that can be most commonly met with.

That which the writer considers is of most frequent occurrence is the connecting of the secondary return into a low point in the cylinder. Only a few minutes before these words were written, the writer saw a cylinder of good quality standing on a railway platform, and this cylinder was fitted with flanges, as Fig. 66. The two flanges on the right were, no doubt, for the primary flow and return; the flange on top for the secondary flow; and the other two flanges, one on right near the bottom and one in the bottom, could not be for anything

else than the secondary return and cold supply. It would hardly matter which was used for either purpose, for both were practically in the bottom. To stand and look at that cylinder was to know that the apparatus it was intended for, whatever its size or wherever it might be, would never be more than a limited success, if it did not prove quite a failure. The only possible chance of its acting well

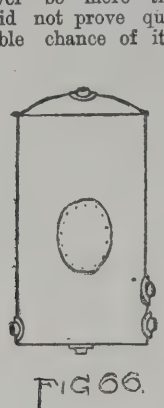


FIG 66.

would be if the works were carried out as described in Art XI.; but this could not have been intended, as one less flange would only be needed. It is unnecessary to repeat information given in previous papers, but let it be understood that, with the exception just mentioned, the secondary return must be be brought in near the top of the cylinder, as Fig. 67.

Another very prevalent fault is a boiler of



FIG.67.

insufficient power. With quite the majority of ranges the ordinary square-arched flue boiler is used, just the same as years ago when hot-water works were not nearly so extensive as now, and in a fair-sized residence it is now more often the case than not that a saddle boiler is insufficient for the work. As already mentioned, it frequently happens that a good boot boiler is incapable of doing the work, and an independent boiler is absolutely necessary. As hot-water works are getting more and more elaborate, it may probably happen that saddle boilers will soon be useless for all except cottage property: it is almost the case now.

An inefficient boiler is noticeable by its never yielding hot water in good time in the morning; but it can always be depended upon a little later in the day, supposing the fire is kept up. This is a regular result. Sometimes an irregular heating of the water is attributed to a poor boiler; but this cannot be, as should a boiler prove capable one day, it should be found equally capable always, as there is nothing to prevent its being regular in results except want of ordinary care in stoking and keeping the flue clear of ash. The latter is the common cause of uncertain results. The connection of the secondary return at a low point, just referred to, cannot be confounded with this second fault either, as its general peculiarity is for hot water to issue from the tap the first quarter or half-minute that it is opened, and then the issuing water becomes cooler, although the heat of the cylinder may indicate a plentiful store of very hot water.

A general fault, and which should perhaps have stood first, is exposed pipes. There are at this moment hundreds (possibly thousands) of works carried out, and which give but moderate results, yet which could be converted into highly successful undertakings, by being entirely covered with some poor heat-conducting material, and this would also effect an agreeable reduction in the quantity of fuel burnt. In the cylinder system it is the pipes above the cylinder that most need attention. The cylinder itself may profitably be covered, although it is usually in a warm position. With the tank system, the position of the tank itself generally leads to the greatest loss, for it is no uncommon thing for these to be placed in roofs adjacent to (sometimes touching) the cold water cistern, and quite often there is a clear way through beneath the eaves to the outer air. In this case, nothing but a very powerful boiler and an extravagant outlay in fuel will keep the water hot in severe weather. There is hardly a position in which a tank can be placed but what it becomes highly necessary that it be covered; the only exception is when it is placed in a close linen closet.

The last fault that there is space to discuss is that which causes noises in the pipes. These noises do not always proceed from the same cause. Usually noises occur in pipes that have been fixed some time, and they manifest themselves gradually, commencing in a very slight way, but in the course of time, either a few weeks, or it may be over a year, they become unbearable. When the noises are loud and alarming they are usually accompanied by vibrations that are felt at the most remote parts of the residence. These noises are due to fur, or incrusted deposit. It is always of gradual growth; but the speed at which the substance accumulates is governed by three things—viz., the hardness of the water, the quantity of water used, and whether the boiler is a powerful one. There is one other thing that governs the accumulation of deposit in pipes to some extent, and that is whether the boiler is cleaned out regularly or not.

There is only one remedy for this: when the noises are really bad, the portion of the service pipes which are furred must be taken out and renewed. It is, as a rule, the flow-pipe for a few feet from the boiler that will be found choked. The return-pipe is not generally in such bad condition.

When noises are heard in a quite new apparatus, they are generally due to air accumulation somewhere. It may be that the flow-pipe is dipped in the boiler, or (if the cylinder system) it may be the expansion pipe dipped in the cylinder, or, what is frequently met with, the flow-pipe descends to a trifling extent somewhere, so that it gets air-locked. Pipes should always be given a rise, however little, wherever possible. Horizontal pipes can be tolerated, but never actually approved of.

The most difficult cause of noises to discover is an obstacle in the pipes. When workmen use pipes each length should be looked through just before putting it up; but occasionally the workman introduces the obstacle himself by stopping up his pipe ends with a plug of hemp at night, and forgetting to take it out when proceeding in the morning. Quite commonly, when working on old pipes, the blows and rough usage disturb the inner coating of fur in the pipes, and when the apparatus is charged and used, this matter will collect at an elbow, and give a lot of trouble. It is almost a regular thing for taps to have to be taken out and cleared of this scale after pipes have been disturbed, as the flow of water towards the tap naturally carries this light matter with it.

The next article will deal with low-pressure boilers.

NOTES ON TERRACOTTA.*—III.

TREATMENT.

IN dealing with this article, it will be necessary to point out not only what should be sought after, but also what should be avoided. The architect who, when designing in brickwork, confines his details within the possibilities of brick sizes, although showing a knowledge of the material with which he is dealing and its adaptation, is necessarily reduced to an unpleasantly limited range of expression, so to speak. To obviate this, brick lumps, or preferably terracotta, the twin-sister of brickwork, should be introduced. When designing ornate features in brickwork alone, or in terracotta forming part of a brick treatment, the bond should first be set out, that is, drawn full size, and the features worked within a given range with due regard to the bond. Where this is not done, the bricklayer is often reduced to the undesirable expedient of building up blocks of an abnormal size by means of cementing and dowelling [illegible] or more bricks together, but more frequently the use of shellac and white-lead. Terracc blocks should be in height multiples o brick, and in length multiples of a br or a half-brick, so as to prevent, as far as pr ticable, any "broken bond" in the adjoin brickwork. All cornices and stringcourses, wh ending abruptly, should be formed with w stops.

These remarks apply to all projections, corbels, oriels, and other ornamentations, wh have often the appearance of being fixed u the façade rather than expressions of hur thought wrought out of the crude blocks. design, a free treatment appears best suited the employment of terracotta—the Pruden Assurance offices, for instance. Here absence of undercutting is fully compensated by the boldness and high relief of its orname producing the desired alternation of light shadow. Undercut work should be avoide much as possible in this material, and it will found upon a close examination of the work Mr. Waterhouse—that great master of mate and its treatment—that it is avoided, for ne all his raised ornaments are built up, as it were right angles to the blocks of which they form a p "As the furnace proveth the potter's vessel," is every block of terracotta proved in pas through the kiln. The sections should be that no long unbroken lines of square mem appear upon the completed building (the irre larities in round or convex members are apparent than in square members). The tinuity of line may be interrupted at s intervals by the use of annuletes or rusticati The voussoirs of arches of large span be treated in the same manner as a mean minimising the apparent irregularities of material. Of the mouldings of the exis orders and styles of architecture, those of Norman and the Classic lend themselves readily to reproduction in terracotta. T variously combined members, with little c undercutting, are adapted to this material, the deeply-cut and delicately-attached mem of the Early English are not so. The tend is, however, to depart from the verna mouldings, either by modifications of old sect or the introduction of new ones, producin class of buildings which not inaptly migh called terracotta designs, and which, perh will be looked upon at some future period as initial and progressive steps of the new depa in architecture shadowed forth by Professo Roger Smith in his recent opening lectur architecture at University College, London.

Architects are frequently appealed to to in mind the distinction between terracotta stone, and to treat it more from a brickwork of view than as a substitute for stone, obta the necessary bond by using alternate he and stretchers—i.e., Flemish bond, as a mea reducing the cost, lessening the time require production, and producing work truthful in line. To reduce terracotta to the pronou monotony of brick sizes is asking too muc by so doing the purpose for which it is so adapted—the working out of details not su for brick sizes—would be defeated. The mon of plain areas of ashlar work in this mate somewhat relieved by the introduction of occa narrow courses, an effect which the Greek Romans, in their love of order and unifor seem to have overlooked, as they design stones of uniform sizes. Terracotta is se its best in a free treatment forming part brick design; the brick sizes, acting as a f the larger yet necessarily small blocks of cotta. This is nowhere, perhaps, better e plified than in the St. Paul's Schools, West sington, where the dressings are of brigh terracotta, and the facings of deep, sombre well-burnt sand-faced bricks, with the emphasised, both in the terracotta and brickwork, by being struck and cut i manner known as "weather-jointing." of our recent buildings of the "new depar have noticeably suffered in the choice use of bricks intended to harmonise wit terracotta dressings. The selection of of a certain tone of colour is often made w due regard to their weathering capabilitie result being, in some instances, after a few exposure, that while the terracotta remain in the least affected, the brick facings are s be perishing and crumbling away. The practical man in any particular branch ha

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sult of special training and years of experience that particular branch, generally a rough-id-ready way of arriving at conclusions when idging of material, &c, which cannot often be oset by a more subtle method of induction. 7ith respect to bricks and terracotta, the method this:—Given a variety or number of red bricks terracottas to choose from (and I think we ight safely say any of the other known colours :cepting white), those which are at the same me the darkest and the heaviest of their kind ossess the best weathering properties. The :eater weight is, of course, due to the greater nsity of the clay, and the darker or deeper ne of colour to the oxide of iron present being nverted into peroxide in the process of firing, the ep red colour varying in shade according to e degree of heat in the kiln. Another ready ethod is to weigh the wares—whether bricks or rracotta—when perfectly dry, in air, and then ak them in water to the degree of saturation; ow weigh them again, and those which have sorbed the least weight of water are most rely to be the most enduring. Where density clay, deep-toned colour, and little or no sorption are found combined, we may rest sured that we have an almost imperishable aterial to build with.

(*To be continued.*)

THE HISTORY OF HAMPTON COURT PALACE.*

THE third and concluding volume of the interesting "History of Hampton Court," y Mr. Ernest Law, B.A., carries the arrative down from the expulsion of James II., rough the Orange and Guelph times, to the esent. We must refer our readers to our last otice of this work, which dealt with the cissitudes of the Palace during the ages of the udors and Stuarts. This last volume, just iblished, has some architectural interest, as it as during William and Mary's reign that the d Tudor state apartments were rebuilt from the signs of Sir Christopher Wren, and the park id out. The plans engraved assist the reader understand the demolition of the Tudor build-gs, and the rebuilding and additions made by Vren, which include the east front towards the reat Fountain Garden, 300ft. in length, and ie south front, 315ft., making two sides of the adrangle known as the Fountain Court, which nearly a square, the north and south sides of hich are 116ft. 10in. long, and the east and est sides 110ft. and 109ft. respectively. Vren has made the most of these east id south ranges by extending them beyond ie north and west ranges of the older palace. us giving his façades greater length. Evelyn, his "Diary," speaks of this rebuilding under ite 16th of July, 1689, which he saw in the rly stage of foundations. The great fountain garden on the east side, to which he refers as spacious gardens with fountains," was made om for by filling up the canal at this end. During is reign, also, the circular space before the east ont, where the great avenues converge, was id out as a fountain garden, though the idea of nnecting the avenues and planting the large micircle of lime trees was that of Charles II. seems probable that this great semicircle of me trees was extended further eastwards. An teresting incident is referred to touching the lling down of a wall, by which three or four en lost their lives, and an inquiry was insti-ted by the King, who desired that the Office of Vorks should examine into the matter, and that Vren should report to the Lord of the Treasury ereupon. There was a misgiving on the part f Wren as to the disinterestedness of the officials f the Board of Works. We read that the mptroller of the works and Wren could not gree as to the cause of the accident; an animated ene arose, an inspection of the defects by unpre-diced persons was ordered by the Lords, the result which was to confirm Wren's view, when it was dered that the works be proceeded with under Vren, as "surveyor," whose salary was only s. 10d. a day, while that of Talman, the comp-oller of the works, was 6s. 10d. a day. Wren's sk was not an easy one: he had to consult Villiam's taste in everything, and also to bring to harmony as far as possible the new Debased Renaissance of the day with the old Tudor Gothic. The great architect effected the combination with much skill by planning the new building round a court on the site of Henry VIII.'s Cloister Green Court, and in introducing red brick with stone dressings into the new buildings. The garden front of the Palace has much in it that resembles the palace built for Charles II. at Winchester, and now used as the barracks. The architraved windows on the first floor, the circular mezzanine openings below the main cornice, and the attic of square-shouldered windows above have a resemblance to the parade front of the latter edifice. The façade is massive rather than pleasing, and the level line of balustrades has a monotonous effect. No doubt William's taste approved of a style so much in vogue at the period. Mr. Law's remarks on the contrast between the picturesque irregularity of the old Tudor structure, with its gables, bay windows, turrets, and chimneys, and the uniform rectangularity of the elevations of the new portions are quite true; and what he says of the delightful difference of colour, the light pinks and purples of the old brickwork, compared with the monotonous brickwork of the new, is another reason why the older buildings are so much more pleasing. Dallaway's criticism, quoted in "Walpole's Anecdotes," is quite just as to the little repose for the eye. The colonnade of coupled columns in the Clock Court, which masks the Tudor building behind, is certainly a good feature, and there is something dignified in the elevations of the Fountain Court, with its arcaded and groined lower story, and the series of circular mezzanine windows on the second story. Grinling Gibbons was master carver, and his stone carvings here are certainly almost equal to anything he did in wood carving, as in the garlands and other devices round the circular windows of the quadrangle, the keystones of the arcades; the colonnade trophies of the Clock Court, &c. Gabriel Cibber also carved several coats of arms, statues, and figures, and the tympanum of the chief front, for which he recieved £400. The subject represents "The Triumph of Hercules over Envy," intended as a compliment to William. An excellent engraving is given of the handsome screens or gates of wrought iron, which formerly inclosed the gardens, designed by Jean Tijou, a French artist, who executed many other designs of iron-work for the Palace. We have little room to refer to the historical incidents recorded by Mr. Law. William's strong Protestant prejudices were very offensive to the English. "He set his face," we are told, "against any church music at all, and deeply offended the prejudice of English ecclesiastics by adhering to the Dutch custom of wearing his hat in chapel." His want of regard for the old home of our English kings and queens might have been even more ruthlessly shown if his contemplated idea of rebuilding other portions of the Palace had been carried into effect. Happily it was not. He showed no interest in, or reverence for, English traditions or antiquities; therefore we cannot be surprised that when Wolsey's Chapel, the "glorious gallery," and Holbein's fine frescoes were destroyed by fire with the Palace at Whitehall, through the carelessness of a Dutch washerwoman, he showed little concern or grief. It was indeed a national loss that Henry VIII.'s old State rooms at Hampton Court, with their internal features should have been destroyed, which, as Mr. Law observes, comprised the most interesting parts of the Palace. Queen Mary's private life, her love of needlework, her taste for Oriental and blue and white china or Delft ware, form an interesting chapter. The fitting and decoration of King William's apartments, and the estimate given by Wren for them, are fully described, and this and the following chapter will be read with interest. Wren's estimate in his own handwriting, dated 1699, and discovered in 1847, almost reduced to pulp, is still preserved in the Record Office, and is reproduced by the author. Many details of Gibbons's delicate carvings in lime-wood for the State apartments are given. The king's bedchamber has a very beautiful frieze of foliated scrollwork, also some choice paintings on the ceiling by Verrio, representing "Sleep," with figures of Endymion, Morpheus, Diana, and Somnus. The king's staircase is one of Verrio's largest works, and prompted the satire in Pope's lines. Queen Anne's connection with Hampton Court was not of long duration. An account is given of the undischarged debts of her workmen, and their difficulty of obtaining payment from the Treasury. George I.'s arrival, his "fat and ugly mistresses," nicknamed the "Elephant and Castle" and the "Maypole"; his unpopular regard for his German friends, are interesting incidents. During this reign it was that Sir Christopher Wren, after fifty years spent in the service of the Crown, was dismissed from his office, an act which, as Mr. Law says, was one of the "worst blots on a reign sufficiently blurred and bespattered." The great architect was of too noble a nature to cringe to the "crew of foreign parasites and mistresses who dispensed the royal patronage of the first George." William Benson, who succeeded Wren, was more compliant, and no doubt did not scruple to obtain the favour of his friends at Court by means which would have shocked his predecessor. The pretence of effecting economies was a disgraceful pretext; so were the abuses alleged by Benson and others of jobbery by the clerk of works. Benson was soon discredited, and his jobbery and incapacity to hold the office overtook him, for he was dismissed a year after his appointment as surveyor. Wren's protest against Benson's memorial alleging mismanagement of various kinds is given in full, and is dated 1719, from his residence at Hampton Court, and is a noble vindication of his conduct. George II.'s life at the Palace is interesting reading; during the next reign it was divided into private apartments. But we leave Mr. Law's interesting narrative here. The subsequent history and recent restorations are dwelt upon in detail. This third and last volume completes a work which depicts, by pen and illustration, English Court life and manners during a most eventful and brilliant period.

* The History of Hampton Court Palace, Vol. III. Illustrated by Engravings, Etchings, and Plans. By ERNEST LAW, B.A., Barrister-at-Law. London: Bell and Sons, York-street.

NEW TURKISH AND WARM BATHS AT WEST HARTLEPOOL.

PRACTICAL hygiene is certainly making headway in this country; theories, however good they may be, are simply a dead letter if not put into practice. It is a little over thirty years since the Turkish bath was reintroduced to us by David Urquhart; it has taken deep root, so that now nearly every town of any dimensions has one or more Turkish baths, and West Hartlepool has made an effort to be abreast of the times. Some months ago, a company was formed for the purpose of erecting new premises, and to provide baths to meet the pressing wants of the neighbourhood. The arrangement of the baths, the heating and ventilation of the Turkish bath, and the supplying and fitting of lounge baths was intrusted to Messrs. J. Constantine and Son, of Manchester—of the Convoluted Stove notoriety—with most satisfactory results, as the following will show:—

Hartlepools Bath Co., Limited,
Tower-street, West Hartlepool,
August 29, 1891.

To Messrs. J. Constantine and Son, Manchester.

GENTLEMEN,—Now that your portion of work in connection with the above company has been completed, I beg leave to say that everything has been carried out and left in a thorough and highly efficient manner, both in material and workmanship. 1st. The stove and boiler are perfection, and your stove fitters have given us the highest satisfaction for skill and workmanship. 2nd. Your plumbers and bath fitters have carried out their part of the work in a most excellent and skilful manner. I may say that I have never seen work so carried out and so perfectly complete. And I have had over twenty-three years experience in this work, and during that time have had five such places erected for me. When we went to test your plumbing work with the hot and cold water full on throughout the building, there was not a single joint in the whole place wanted redoing or even looking at—all was perfect—and it was very pleasing. We tested all the works—viz., stove, boiler, tanks, baths, douches, and all water arrangements last Thursday, and expressed to your foreman plumber that we were highly satisfied with everything.—Yours very obediently,

ROBERT SCOTT,
On behalf of the Hartlepools Bath Co., Limited.

The wall-surface of the hot rooms are all of white glazed bricks; the ceilings are finished with adamant and faced with "chromolith," enamelled faced; the floors are beautifully tiled, the lounge baths are porcelain, and everything finished in a complete and substantial manner.

The ceremony of unveiling a stone of dedication of the Manchester New College, Oxford, took place on Tuesday afternoon, when there was a large and representative gathering of Unitarians from all parts of the country. The buildings are situated at the back of Holywell, near Wadham New College. They will cost £55,000, and will be built from designs by Mr. Thomas Worthington, of Manchester.

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HOSPITAL CONVALESCENT HOME AT PARKWOOD.—CHANCEL, CLUMBER CHURCH, NEAR WORKSOP.—SCIENNES SCHOOL, EDINBURGH.—DETAILS OF EARLY EIGHTEENTH-CENTURY ENGLISH WOODWORK. — SOME EIGHTEENTH-CENTURY DOORHEADS FROM EXETER.—LODGE AT ASKHAM HALL. —LEEDS AND COUNTY LIBERAL CLUB.—TRUNCH CHURCH, NORFOLK.

Our Illustrations.

HOSPITAL CONVALESCENT HOME.

This building is now in course of erection at Parkwood, about a mile from Swanley Junction, Kent, for the Trustees of the Hospital Convalescent Home. It will provide accommodation for 120 convalescent patients besides the requisite staff, the patients being received from some of the general hospitals in London, the selection of the particular hospitals to be thus benefited resting with the trustees. The cost of erecting and finishing the building, which will probably amount to about £40,000, will be defrayed out of the donations of Mr. Peter Reid, and an anonymous friend of his, who have contributed respectively £100,000 and £50,000 for the purpose of founding the Institution and maintaining it on a permanent basis. The building is three stories. The central and administrative block provides accommodation for committee, matron, undermatron, nurses, and medical officer. To the westward of this block is the men's wing, consisting of large and small day-rooms and smoking-rooms with verandahs. The east wing is similarly apportioned to the women, with three day-rooms and verandahs. In rear of each wing are ample cloak-rooms and lavatories. On the north of the central block is the large dining-hall, which has separate corridors leading from the men's and women's wings, and which is capable of seating 200 persons, so as to allow for future extension of the home. In the rear of this dining-hall are the kitchens, nurses' dining-room, and domestic offices, which are only one story. On the upper floors bedroom accommodation is provided, together with an ample supply of baths and lavatories. A separate staircase is provided to each block. The style of the building is Domestic, as it was the desire of the architect to give it an air of homeliness. It is faced with picked stock bricks, relieved with red brick and stone dressings, the upper part of the walls being covered with red hanging tiles. The roof is covered with Broseley tiles. The building is being erected according to the designs of Mr. E. B. I'Anson, architect, of 7A, Lawrence Pountney-hill, London, by Messrs. J. Shillitoe and Sons, the clerk of works being Mr. J. Langton. A chapel for the use of the inmates of the home is also in course of erection, from the design of Mr. I'Anson, at the expense of an anonymous benefactor. The drawing reproduced herewith was exhibited at the Royal Academy this year.

STALLS, ETC., IN CLUMBER CHURCH, NEAR WORKSOP, NOTTS.

These stalls, which were executed for his Grace the Duke of Newcastle, were made by Messrs. Cox, Sons, Buckley, and Co., of London and New York. They are carried out in walnut and cedar woods; the statues are carved in "linden" or lime wood. The crucifix or "rood" is of walnut, the figures of the rood are executed in cedar, and the candlesticks are of rose or "latten" metal. These works aim after representing the grace, delicacy, and power of the best Mediæval productions, the statues especially being carved with life and vigour. They present a striking contrast in these respects to the tame and lifeless figures on so many screens and retables lately erected. These stalls, &c., are due to the facile pencil of the Rev. Ernest Geldart, who was, we believe, a pupil of Mr. A. Waterhouse, R.A. Messrs. Bodley and Garner were the architects of the building. Another illustration of the church will be found in the Building News for Jan. 2 this year.

SCIENNES PUBLIC SCHOOL.

This school is in course of erection by the Edinburgh School Board. The infant department contains five classrooms, placed on the ground floor. The juvenile department contains eleven classrooms, placed on the ground and first floors. On the second, or upper floor, is provided a drawing classroom, a demonstration cookery classroom, a practical cookery classroom, and a science room. From the nature of the site, a basement floor has been obtained to the back, containing a gymnasium and a swimming-bath. The usual private rooms for teachers and cloak-rooms for the children are provided. The school is heated by hot-water pipes, fresh air is admitted through boxings, in which are placed coils of hot-water pipes, so that in winter the air is gently heated before entering the classrooms. The vitiated air is extracted by means of fans driven by a gas-engine. The school will accommodate 1,679 children, including the practical cookery room. The cost of the school, including furniture and fittings, will be about £21,000. The work has been carried out from plans prepared by Mr. Robert Wilson, the Board's architect.

DETAILS OF ENGLISH WOODWORK.

The examples of early 18th-century woodwork are from South Kensington Museum. The first, a door-head with elliptical arches, is a fine specimen of the carved work of the period. Much of it being in high relief, especially that to the frieze and spandrels. The fine heads in the latter are worthy of note. The pendants are also very good. It is unfortunate that some idea of the door-opening over which it was placed has not been preserved. It was taken from an old house in Westminster. The other example is officially described as a "Doorcase and Door—carved deal—from No. 18, Carey-street, Lincoln's Inn," and is also a fine piece of work. The carved swags of foliage, flowers, and fruit in the pediment are in high relief. The other carving to the mouldings and architrave is also of good design and well executed.

Sidney K. Greenslade.

EIGHTEENTH-CENTURY DOORHEADS FROM EXETER: R.I.B.A. TRAVELLING STUDENTSHIP DRAWINGS.

These doorheads are from houses in the old residential quarters on the outskirts of the city proper. They are all of wood, and have been so often painted that much of the detail of the fine carved work about them, has been covered up. The first, with the carved brackets springing from the pilasters, is from a large house in Magdalen-street, and forms part of the main entrance to what was once a fine front, some 70ft. in length. The house is of three stories, and has a richly-carved cornice and pediment. Shops have now been inserted in a portion of the lower part, and the house has been divided-up into tenements. The doorhead with the shell supported on carved brackets is from a house in Bradnich-place, and is coarser in detail than the former. The remainder are from houses off Gandy-street.

Sidney K. Greenslade.

LODGE AT ASKHAM HALL, YORK.

This has been built at one of the outlying entrances to the park at Askham Hall, the seat of Sir Andrew Fairbairn. It is erected in brick, with red-tiled roof. Messrs. Chorley and Connon, of Leeds, are the architects.

LEEDS AND COUNTY LIBERAL CLUB: STAIRCASE.

This staircase, to which the drawing scarcely does justice, is erected entirely in oak, and is of considerable size, the width of going being 6ft. has a picturesque effect in execution, is ligh by five large painted windows, and approac from a hall laid with an exceedingly beauti mosaic pavement. The club house to which stairs is attached is one of the largest in the p vinces. It contains a smoking-room 68ft. by 24 a dining-room 79ft. by 24ft.; a reading-ro 45ft. by 24ft., and a billiard-room of the sa size. In addition there are two other billia rooms, grill-room, private dining-rooms, ca room, members' bedrooms, and other apartme A feature of the club is the excellence of ventilation, which is attained by mechan means. Accurate measurements taken by anemometer proved that the air was changed the smoking-room eight times, in the dini room six times, and in the billiard and readi rooms four times every hour, results which pl the building amongst the best ventilated structu of the kind. The buildings have been erec by local contractors from the designs by Mes Chorley and Connon, of Leeds.

TRUNCH CHURCH, NORFOLK.

(For description and further sketches, see page 591.)

CHIPS.

The memorial stone of St. Joseph's Catholic Schools, Richmond-grove, Longsight, Manches was laid on Saturday afternoon. The building be two stories high, will cover a space measu 100ft. by 35ft., and will be faced with Rua stocks. Accommodation for 500 will be provi The total cost is estimated at £3,200. The archit are Messrs. Heathcote and Rawle, Princess-st and the contractors Messrs. Wilson and Toft, C road, Manchester.

Substantial progress has been made with project for rebuilding the church of St. Werbu Derby. Yesterday (Thursday) the Chancello the Diocese, the Worshipful A. B. Kempe, gra the application for a faculty, there not being serious opposition. The committee purpose to ceed as early as possible with the building of chancel of the new church on the vacant land the north of the existing structure, leaving latter standing for the present. The architect is Arthur Blomfield, and the contract for the portion of the work has been provisionally le Messrs. Shillitoe, of London.

In the case of William Ledbury, of Oldwinsf builder and contractor, the registrar has suspen the discharge from bankruptcy for two years.

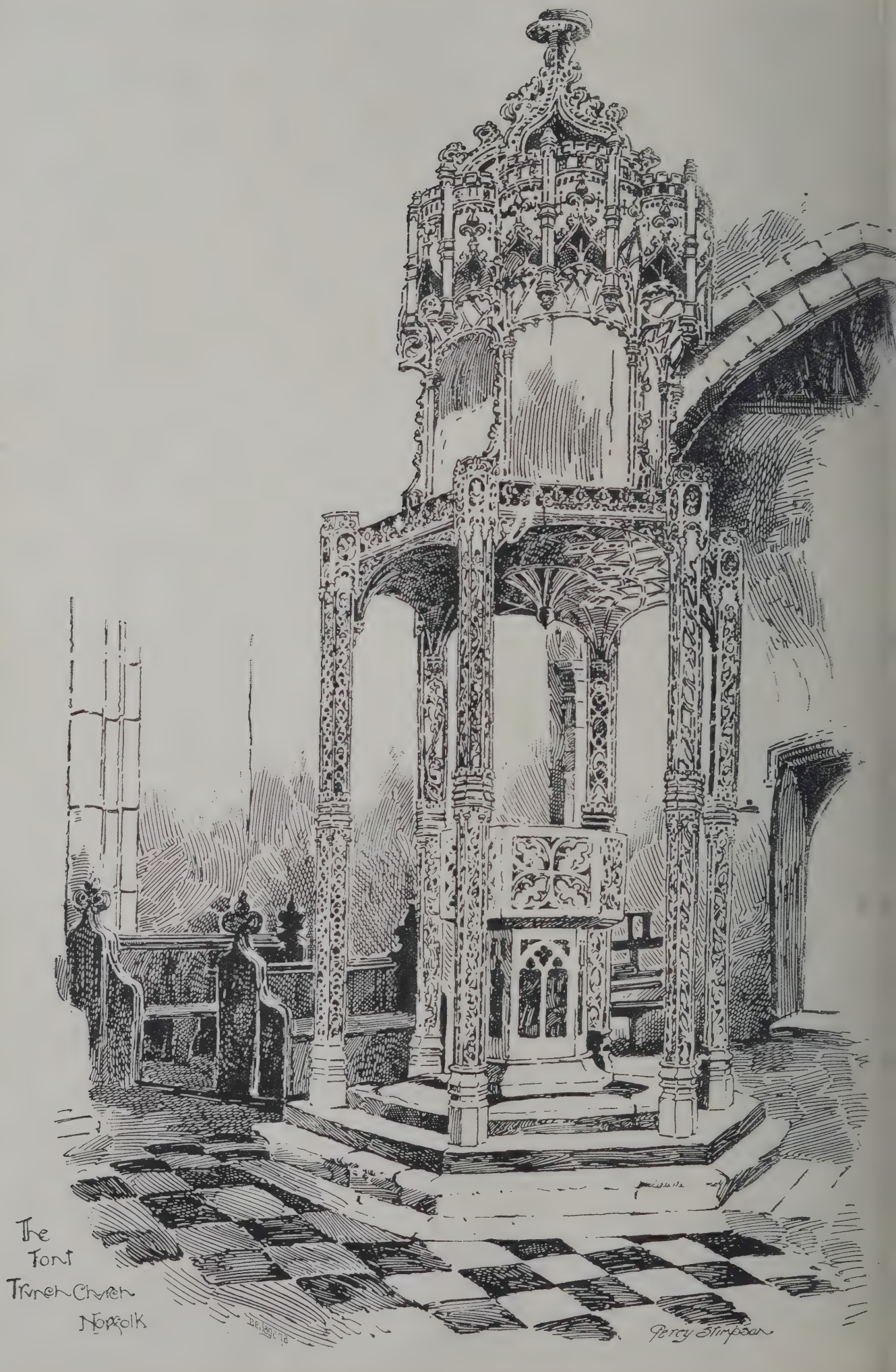
One of the largest statues carved in this cou has left the studios of Mr. Harry Hems, at Exe for India. It is destined to surmount the n gable on the principal façade of the new Munic Buildings at Bombay, which are being erected f designs by Mr. F. W. Stevens, at a cost of £100, The statue is a colossal allegorical one, represen a winged female, 14ft. 6in. high, and is of st weighing nearly five tons. The six colossal fig that went from Mr. Hems' studios early in Au for the same building have arrived safely, and h been placed *in situ*, to use Mr. Stevens' wo "literally without a scratch." We illustrated Bombay Municipal Buildings in our issues Nov. 7, 1890, and June 19, 1891.

The excavations of the Priory ruins at Ca Acre have been stopped for the examination Saxon cemetery in a distant part of the same pa This has been carried on at the expense of Willett, of Brighton, and has resulted in the find of a large number of cinerary urns, only a few which remain entire. A report of the discove is being drawn up by Mr. Housman, of Chiche

A stained-glass window has been placed in the n aisle of the nave of Canterbury Cathedral in mem of the late Dean Stanley of Westminster, who at one time a canon of Canterbury. The win is of four lights, with two tiers, divided b transom.

A carpenter named James T. Hollidge, Duncan-street, Newington, was, at the Lam Police-court on Monday, charged with assaul James Quale, another carpenter. The prosec stated that because he would not join in the st the prisoner and other men assaulted him, e while he was under police protection. The ma trate fined him £5, and refused to allow him tim pay it.

New works for the supply of water by gravita to the village of Lochwinnoch, West Renfrews were opened on the 15th inst. The works h been carried out by Messrs. McKerracher Ballantine, of Bo'ness, from plans by Mes Niven and Haddin. The reservoir holds e million gallons, and is situate at Ladyland, miles south-west of Lochwinnoch, to which a main brings the supply.


The Font
Trunch Church
Norfolk
Percy Simpson



BOOKS RECEIVED.

Mensuration made Easy, or the Decimal System for the Million (Effingham Wilson and Co.) is the twentieth edition of a useful shilling work. The author gives a table of multipliers for reducing brickwork of any thickness in one operation to rods, cubic yards, or feet. He shows that to convert cubic feet to rods it is only necessary to multiply by ·00327, to convert cubic yards to rods it is similarly requisite to multiply by ·0883, and to convert cubic feet to yards one must multiply by ·03704. Simple rules are given for obtaining the areas of fields, and for estimating the contents of squared and round timber, and for paper-hanging a room.——*A Catalogue of the Parkes Museum* has just been completed by the secretary, Mr. E. White Wallis, F.S.S. It is classified in four divisions —(*a*) science in relation to hygiene, (*b*) hygiene of special classes, trades, and professions, (*c*) construction and sanitary apparatus, and (*d*) personal and domestic hygiene. —— *Notes on Building Construction.* Part I. First Stage or Elementary Course. New edition, enlarged. (London: Longmans, Green and Co.)—The new and revised edition of this useful textbook is arranged to meet the requirements of the syllabus of the Science and Art Department. This Part treats of all the points required for the examination in the first stage, and will be found very comprehensive, and well illustrated by diagrams and details of construction, under the several trades. The additions that have been made to this volume comprise chapters on riveting, centres, built-up beams, and plate girders. These have been transferred to this volume from Part II., and have been revised. The chapter on iron roofs has been rewritten, and seven plates have been added of copies of contract drawings for recently constructed roofs. The other chapters have undergone revision. We notice a very full and succinct *résumé* of brickwork. The different bonds are clearly illustrated by plans and sections of courses for various thicknesses of walls and angles, reveals of window and door openings, square and splayed. In masonry, the classification of walling, natural bed of stone, are described with the aid of engravings; joints, such as metal, dowelled, joggling, plugging, are explained and shown by isometrical diagrams. The joints in carpentry are equally well dealt with, and the principles to be observed inculcated. Faulty connections are pointed out, as that of "double tenons," which weaken the timber; both tenons seldom bear equally, so that only one of them has the strain to bear. The chapter on riveting is very fully treated, and amply illustrated by "lap joints," "fish joints," zigzag, "chain," and other kinds. The modes of riveting for tensile and compressive stresses, and the essentials to be kept in view are clearly stated. Various forms of built-up timber beams, curved ribs, and trussed girders are illustrated, floors of the several varieties are described, and timber and iron roofs are fully detailed, the connections in all cases being carefully shown. Slating and plumbing work, and joinery are other subjects which have been carefully revised and brought up to date. No better elementary treatise on building construction can be had. The drawings of details are excellent.

TRUNCH CHURCH, NORFOLK.

TRUNCH, called Trunchett in Domesday Book, is a quaint little village situate about three and a half miles from North Walsham, and is about the same distance from the once famous Bromholm Priory. It is said that it had a market as late as the sixteenth century, which was probably held in the open space east of the church. Here also were held the guilds of St. Botolph and St. Mary. The church, a handsome and extremely interesting structure, is of the Late Decorated and Perpendicular periods, is dedicated to St. Botolph, and was erected on the site of an older edifice, the patronage of which was granted to the Prior of Castleacre by William Earl Warren in the reign of Henry III. The fine open-timber roof is of hammer-beam construction, and springs from carved corbels. At the ends of hammer-beams there are figures of angels, and the spandrels are filled with pierced tracery. The rood-screen is of most elegant design, its lower panels having paintings of the Twelve Apostles, and above these the rails having carved scrolls intervened between foliage on which is painted a Latin inscription. The upper part of the screen consists of seven arches, three on either side of doorway springing from moulded studs—these are surmounted by a carved and gilded cornice of exquisite detail. The font is Late Decorated, and stands beneath a tester or baldachin of richly carved oak. The cover is supported on shafts of pentagonal form about 7ft. 6in. in height, carved from the base with twisted foliage. On the inside face of one of the shafts is a quaint representation of St. George and the Dragon. There are traces of the Crucifixion in the panels below the beautiful crocketed canopy. The priest's doorway at south side of chancel, as shown, has a stone porch in the Decorated style, which is remarkable for having a buttress rising from it. On a monument in the chancel is the following:—"Lancellotus Thexton, Capellanus Regis Edw. VI. sacre theologie baccalaureus, et Rector de Trunch, obt. 25 Feb. 1588," and on a gravestone, "Hic jacet Magr. Robt. Cantell quod. rector isti. ecclie. qui. obt. 1 Sept. Ao. Dni. 1480."

CHIPS.

At a meeting of the Leith town council on Friday, a resolution approving of the report of Messrs. Leslie and Reid, civil engineers, as to the necessity for an additional supply of water, and as to the suitability of the Manor scheme for such supply for Edinburgh, was carried by 11 votes to 4.

A movement is on foot for the further restoration of the Abbey Church of Bourne, Lincolnshire. Mr. Traylen, the architect for the previous work, estimates the cost at £1,000, including £425 for re-roofing; and some £850 having been promised, it has been decided to proceed with the reconstruction of the nave roof.

The new tower and spire just added to St. Luke's Church, Kingston-on-Thames, were dedicated on Sunday.

Memorial stones of a Bible Christian mission chapel to be built in Hereford-street, Maindee, Newport, Mon., were laid on the 15th inst. The building will seat 400, and will cost £850.

An inexpensive improvement is being made in the ordinary spirit-level by a New York firm, by means of which a level is made luminous, to facilitate the carrying on of work where the use of a level is necessary, but where the light is not good enough to readily see what it indicates, and even where it is absolutely dark. The tube is made in standard sizes, of the usual form, to be set in the ordinary way, and a strip coated with a luminous compound is permanently attached to the back of the tube by a wrapper, which excludes dust and is treated to withstand moisture. The bubble is visible from the side or top, as usual.

WAYSIDE NOTES.

CHOOL-BOARD architects are having quite a benefit just at present. I have noticed a ck of no less than three advertisements for w school buildings. The combined boards of boroughs of Walsall and West Bromwich pose to erect a "truants' school" at Lich-d; the board for the parish of Pembrey require ns for new buildings at Burry Port; while the rthfleet School Board, not content with its leavours of some six years back, contemplate litional accommodation for boys, besides a chen, presumably for culinary tuition. Really Education Acts have been great gain to the hitectural profession, notwithstanding the fact London schools being produced on the whole-e manufacturing system. The various build-gs required in the provinces have brought ndant grist to the mill, and will continue to so for years to come. The architect who has tened on this class of work must surely con-er that the education of the masses is a good ng indeed, and have a kindly, post-prandial ling towards school boards in general.

I anticipate something "coming our way," as r. Mould used to say in connection with th these school competitions. There will be nething to talk about respecting that for the ool at Burry Port. The advertisements state at competitors must name the terms upon which ey are prepared to carry out the works, which ans, I expect, that there will be some *under-tting*, in nature different from that of the 13th-ntury stonemason. We shall have some ore "throwing in" of travelling expenses, d further offers to do all things necessary, in-ding the finding of receipt stamps for dis-arging accounts, for four and five-sixteenths r-centum on the estimated outlay, extras only cepted. Doubtless several architects anxious uphold the dignity of the profession have itten to the Pembrey School Board stating that, less the terms are to be as customary for pro-ssional work, they cannot compete. I only pe that any such protests may be successful, d be the means of avoiding another unseemly ramble for work, by undercutting, such as we tnessed not so very many months ago.

The Northfleet School Board, I notice, offer a fee" of fifteen guineas for the best set of ans. The word premium is not used. All ings considered, there seems wonderfully little ance of the recipient of this sum carrying out e works.

The new era of the Architectural Associa-on will date from Friday evening last, hen Mr. F. T. Baggallay delivered his able ldress, and spoke of the changes that ve been made in the old order of things. et it not be forgotten that the present com-ittee of the Association are building upon undations laid by its predecessors. The first ep has been successfully taken, and, excepting ose who bore the brunt of the fight, none can ow how hard that was in face of the actual position of some, and the dubious attitude of hers, among the latter of whom I must con-ss myself to have stood. But now the change made, I feel sure that all who held back will me forward and help in what way may be open, iving, at least, their hearty goodwill to the new enture, and something more concrete and solid an goodwill, if such be in their power. Now at the new organisation has been set up, the ne thing needful to insure success is individual thusiasm on the part of members. Financial ssistance is the backbone, but a nervous energy only given by the active co-operation of embers. Such interest and enthusiasm as is ow required has not been wanting in the past, nd I do not doubt but that it will be always rthcoming in the future. The fact of the volution in the system of teaching being stablished will not do away with the neces-ty for mutual intercourse and self-help—ie basis of the old formation of the Asso-ation. Rather does it demand a more orough consolidation of these principles, in at now there are greater responsibilities and igher aims.

Among architectural circles on the Continent uite the topic of the week must have been the pening of the New Museum at Vienna by the ustrian Emperor. The late Gottfried Semper and Baron Hasenauer have produced no work finer—in its own class—than this museum, where the Royal House of Austria have installed their splendid collections. From the reports of the opening ceremony on Friday, it appears that the Emperor was more evidently pleased than for many years, and when Baron Hasenauer conducted his majesty to a corner of the new museum where a wonderful view of many of the noble buildings of Vienna was presented, he gave forth unmeasured expressions of pride in the architectural adornments of his city—as well becomes a monarch in a capital city where they would not deface public buildings with unsightly stock-brick excrescences. The works of the late Professor Semper and Baron Hasenauer have been well illustrated at times in this country, so that many readers will know the pleasing, suitable character of the buildings of these renowned architects, even if they are unacquainted with the particular and exact style of the new museum at Vienna. The Hofburg Theatre, with its bold proportions and generally fine grouping, and its refined detail, will be familiar to all. Would that we had a theatre façade in London to equal this Vienna building in dignity of effect! The orders of columns running through two floors in the Hofburg Theatre makes the building, at first sight, appear more Classical than the New Museum, but practically they are similar in tone in this respect. According to the description of the interior of the museum—which has not been generally illustrated, so far as I am aware—the internal work seems to be very rich and magnificent. Baron Hasenauer being alive, takes much of the credit of this work, and has indeed been exclusively concerned with some portions of the design, while, on the other hand, parts are referable solely to the handiwork of the dead Semper.

An engineer of Buda-Pesth has sought permission to make a preliminary survey for a tunnel under the Danube, "similar to that under the Thames," says a Dalziel telegram. This is rather vague and puzzling when we are further told that it "will, however, be constructed for tramways as well as passenger and vehicular traffic." I know of no tunnel under the Thames accommodating passenger and vehicular traffic. There is Brunel's tunnel with an ordinary railway running through it, and the C. and S.L. Railway tunnel with an electric system of transport, and, further, a subway sufficiently big to accommodate undersized pedestrians somewhere by the Tower of London, though I have never been bold enough to discover its exact whereabouts. Dalziel's telegraphist must have had in mind the proposed Blackwall Tunnel, which exists solely on paper, and seems likely so to do for some time.

Speaking of Brunel, I am reminded that a few months will see the broad-gauge system of the Great Western Railway finally abolished. This decision of the directors has, I feel sure, been against their own individual wishes, as, so far as I can ascertain, it is also against the wishes of the servants of the company of all grades, excepting, perhaps, the gentlemen who clean the big engines and fancy, possibly, that a 4ft. 8½in. maximum gauge will make their work lighter, and who don't appreciate the convenience that accrues to the drivers and stokers who can get in an out and about the machinery under the boiler without getting grimed in oil, where the same is impossible in the modern locomotive put together with the compactness of a watch. It will be a loss to the public, who appreciate the roominess of the broad-gauge carriages and the steadiness of the running, and some small section of whom may feel interest in the "Leviathan," "Rover," "Lord of the Isles," or other giants of the railroad of Brunel, designed, withal, by Sir—then Mr.—Daniel Gooch, for whose work volumes are said by the fact that many of these engines have been running forty to fifty years, albeit that they may have been reboilered times without number, and can yet give "odds" to any locomotives running to the north, south, east, or west of the Metropolis.

It seems like an old English institution disappearing. I would that it could be retained; but it will appear that the inconvenience and loss arising from the two gauges has compelled the directors to decide to abolish the third or outer rail in the systems where three rails are laid, and to substitute the narrow gauge for the South Devon and West of England lines, which have never had the third rail we see at Paddington. Doubtless it is the changing of loads from broad gauge trucks to narrow gauge, or *vice versâ*, at Bristol that has been found the most serious inconvenience, and colliery owners and others in the North have doubtless done their worst to influence the directors. Anyhow, the change is to be made. The coming event has in a way cast its shadow before. Those with a critical eye for different types of rolling stock will have noticed there are two kinds of broad-gauge carriages in use at the present time. One is the fine old type—the true broad-gauge carriage making the most of the space allowed by the 7ft. width of railway; the other is merely a carriage of ordinary width mounted on broad-gauge wheels and axles, necessitating, figuratively, a flight of steps (two, actually) to make up the width between the wheels and axles of the carriages. Apparently the broad carriage has been found at times too big. I take this alteration in the type of carriages to have been one step towards the day, now near at hand, when the mighty "Dutchman" shall cease to rush like a whirlwind through the wayside stations of the Great Western Railway, shaking buildings to their very foundations.

GOTH.

PATENT ENCAUSTIC TILES.

MESSRS. MALKIN, EDGE, AND CO., of the Patent Encaustic Tile Works, Burslem, have brought out two new sheets of designs of hand-painted and majolica glazed tiles, hearths and panels, and other decorative adjuncts of fireplaces. These arrangements of glazed tiles are particularly rich in colour. No. 561 is a slabbed hearth 4ft. wide, with back hearth composed of deep-brown mottled tiles as margins, relieved by borders of green and yellow in three compartments. The centre has a panel representing a landscape, rather too naturalesque perhaps, which would have been better substituted by geometrical patterns, such as those which fill the end compartments. The designs Nos. 558, 559, 568, and 572 are particularly rich and handsome; we like the last the best as an arrangement. These hearths can be made to any size and in any combination of colours. The tortoiseshell-like variegations in the borders are very attractive and contrast with the brighter colours. Various panels for mantels and cheeks are also shown. Some very beautiful arrangements of glazed tiles 6in. by 6in. and 3in. by 3in., with borders, are also illustrated in another sheet. We may point especially to a new arrangement of tiles of much beauty in No. 685, in delicate shades of pinkish-brown, relieved by yellow. The majolica fender curbs in browns, blues, and yellows in deep shades are very handsome. These beautifully-coloured lithos are drawn to a larger scale, and numbered for reference, thereby facilitating the selection of designs. The London office and showrooms are Sandringham Buildings, 65, Charing Cross-road.

The rural sanitary authority of Ardee have appointed Mr. C. H. Taite, C.E., of Drogheda, as engineer of the Collon water supply scheme, at a commission of 4 per cent. on the cost.

The new wing recently added to the Royal Veterinary College at Camden Town, from the designs of Mr. Arthur Vernon, of Westminster, was opened by the Prince of Wales on Monday. The addition has cost £8,000.

A demonstration took place at Hoyland, near Barnsley, on the occasion of the formal opening of the town-hall tower and clock. The tower and clock cost £600. The tower was from the designs of Mr. W. J. Sykes, architect; and Messrs. Wm. Potts and Sons, of Leeds, supplied the clock, which is four-faced, and can be seen for many miles around. It is from the designs of Lord Grimthorpe.

The memorial stone of the nave of Christ Church, Liverpool, was laid on Saturday. The intention is to replace the whole structure by a more commodious and handsome building. It is proposed first to build the nave, and then, if funds are forthcoming, to go on with the chancel and the tower. The nave, of which the memorial stone was laid on Saturday, will cost about £7,000. It is in the Early Perpendicular style. The church will accommodate 1,000 people. Messrs. Paley, Austin, and Paley, of Lancaster, are the architects, and the contractors are Messrs. Wood and Son, of Bootle, and the clerk of the works is Mr. W. Goulbourn.

THE SOCIETY OF ARCHITECTS.

THE approaching session of the Society of Architects promises to be one of the most interesting and successful ever experienced. The year will open with a dinner on November 10, at the Holborn Restaurant. The President's Address will be delivered at St. James's Hall at 3 p.m. on November 11, to be followed by a discussion, open to members only, upon matters of internal administration, mainly affecting the provincial men; and in the evening the President gives a conversazione at the galleries of the Royal Institute of Painters in Water Colours, which will be an exceedingly interesting gathering. The meeting on December 8 will be at the Suffolk-street galleries, when Mr. Wyke Bayliss, F.S.A., gives a lecture. The galleries being open, this will practically be another conversazione, ladies being invited. On November 24 Mr. G. A. T. Middleton, the secretary, will give an account of the recent excursion to Belgium; and on January 12 Mr. R. O. Allsop will read a paper on "Baths and Bath-houses." More good things are in the wind for 1892.

THE CORK COURTHOUSE COMPETITION.

THE award has this week been made from among the thirteen designs which were received for this work in competition for the three premiums offered for the most suitable, in the order of—First premium, £100; second premium, £60; and third premium, £40. Thirteen sets of plans had been sent in within the prescribed time, and eleven of these were hung up for inspection, the other two sets, not being complete, being laid aside.

The following remarks are taken from the report of the professional referee, Mr. Thomas Drew, R.H.A.:—

I should first premise that there is not a single design which, in my opinion, complies with the condition as to limit of cost. It is impossible for any architect to do so. The limits of the building are absolutely defined by the standing walls outside. Every requisite room is dictated, and its measure. Now that the problem is worked out in detail and clearly before an assessor for his estimating, it is evident how delusive was the preliminary estimate, relying on which the committee expected an expenditure of £15,000. The specifying such a sum, or even £20,000, does not make it more possible for an architect to perform an impossibility, or induce a builder to build so much work for less than the value of it. The question of foundations is in itself exceptional in this case, and uncertain in its issue. It is only clear that a considerable expenditure must be underground, and a shrewd surmise the only sort of estimate of this possible at present. The estimates sent in with the designs are fallacious for the most part. No reliance can be placed in the misleading or over-sanguine statements which usually accompany designs in such a competition as this. The detailed estimates furnished are more reliable, and their value is illustrated by the frank statement of one competitor who contributes a business-like plan, and the most economical in the collection. He admits that to bring his estimate to £16,000 he adopts a price of 4¾d. per foot cube over the whole building, which any experienced architect knows would be absurdly inadequate to apply to such a building as this. For the above reasons I consider the committee have no option but to waive that impracticable condition of their own making as to what will be deemed unsuitable in point of cost for Cork Courthouse. They should, I consider, be prepared for an expenditure of £25,000 at least. I place the designs in the following order:—1st, "Fiat Justitia"; 2nd, "For Auld Lang Syne"; 3rd, "Order."

The names of the architects, the authors of the three selected designs, were found to be "Fiat Justitia," Mr. William H. Hill, F.R.I.B.A., of 15, Marlboro-street, Cork; "For Auld Lang Syne," Sir Thomas Newenham Deane and Son, Dublin; and "Order," Mr. William Stirling, of 3, Molesworth-street, Dublin.

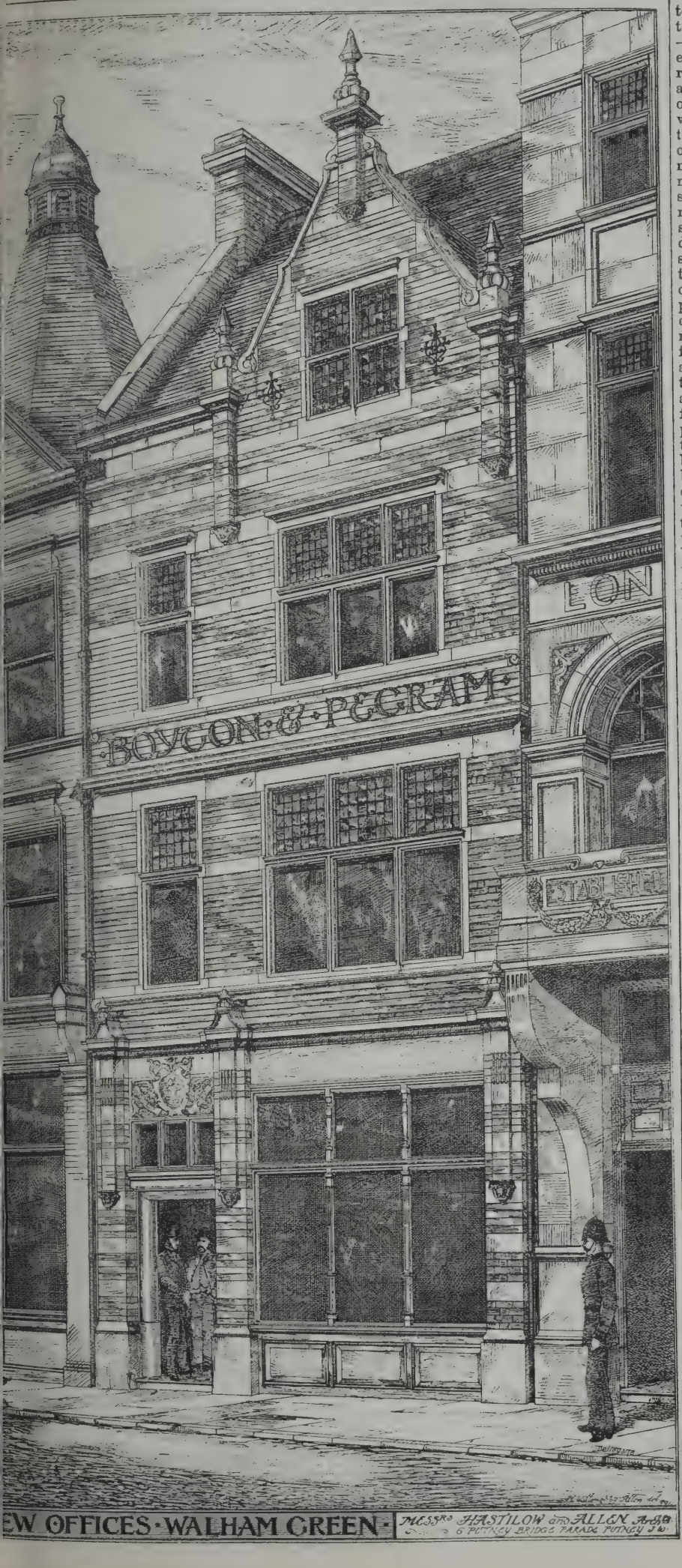
It has been decided that the plans should not be open to inspection by the public until the award of the committee should be confirmed by the Municipal Council.

Of the chosen design ("Fiat Justitia") Mr. Drew says:—An admirable, straightforward plan, well-lighted and inextravagant, evidencing complete familiarity with the procedure of Irish law courts, and the convenient provisions to be made for it. The conditions (save cost) are well observed. The courts are placed next the side but quieter streets. This gives some advantages to the rest of the plan. My estimate is £23,300, or, taking away the dome for comparison with other designs, £22,500. He remarks of the second prize design ("For Auld Lang Syne"):—A straightforward notice attached to the section says: "All internal walls are new (see plans). They have been coloured black in the sections by mistake." It would be a matter of great regret if the committee were to hold that the letter of the conditions above should be applied to what is, in the clearest acceptation of the word, a mere clerical error. The plans are all right, and indicate perfectly plainly what is old and what is new work. There is no deception dreamt of, nor could anyone be deceived in any respect by the sections. I do not think any other honourable competitor would wish to see advantage taken of a mere technical slip of this kind. It has no likeness to the deliberate infringement of a leading condition, as in the case of "Fiat Justicia." I am sure that the framers of the conditions never foresaw that the strict letter of them could be turned to apply with unnecessary and quite useless stringency. I take the responsibility of considering this design honestly in the competition, and feel sure that no one would seek to overrule me on such a technicality. On other grounds, it would be impolitic to do so. The conditions provide that the premiated designs shall become the property of the corporation and commissioners. This is an admirable plan, and the committee would be ill-advised indeed not to secure a property in it, having regard to its instructiveness and suggestiveness in framing whatever plan is ultimately carried out. It is not the least expensive plan, but it has the merit, if it be an important one, that the courts are not placed next the streets. My estimate of it is £24,800. So nearly balanced are the merits of the two plans by "Fiat Justitia" and "For Auld Lang Syne" that it is after much consideration, but for definite and good points which score for "Fiat Justitia," I place it first in order of merit. So near a tie is it, that I would feel it no depreciation of my report if the corporation and commissioners, for any preference they might entertain, inverted the order of precedence. Either plan would give Cork a well-planned courthouse. These two designs are, in my judgment, so pre-eminent in point of merit, that there is no question as to their being entitled to first and second places. Following at an interval, the plan by "Order" deserves recognition as a practical and capable plan, worked out with more conscientious regard to the limit of cost than others, and consequently somewhat cramped in its thoroughfares and dimensions of some rooms. In its economy it falls somewhat short of what Cork courthouse should rise to. Waiting room for witnesses is deficient. Jurors' waiting rooms placed on the upper floor is not a good arrangement. The estimate is honestly put forward as arrived at by cubing at 4¾d., but is quite inadequate. My estimate is £21,350.

The mottoes or devices distinguishing the other designs were as follows:—"Vulcan," "Blarney Castle," "Stat Favor Merenti," "Fiat Justitia Ruat Cœlum," "Lex," "Fiat Justicia," "Chicago," "Phœnix," "The Arms of Cork," "Statio Bene Fida Carinis."

THE DECORATIVE TREATMENT OF NATURAL FOLIAGE.—II.

IN his second Cantor lecture on this subject (which, as last week, we abridge by the author's permission from the Society of Arts' *Journal*, all rights being reserved), Mr. Hugh Stannus dealt with realism and conventionalism in the decorative use of foliage. Realistic treatment had, as was remarked in the first lecture, three phases—pictorial, semi-pictorial, and decorative. In complete or pictorial realism, the chief object is represented with the utmost fidelity to the actual appearances, and no regard is paid to the mass shape of the whole or the foreshortening of portions, the whole being a flower-portrait picture, even though painted on a furniture panel without the regulation gilt frame. Such a treatment, examples of which were given, was contrary to the usually-accepted canons of decoration. In the semi-pictorial method, the chief object and the foreground surroundings were all as realistically represented as in first, except that malformation and abno growth were omitted; but the background reduced from realism to the conventionalism flat tint of colour. Such a painting was a fect portrait of the chosen subject, but n picture. Much of the more elaborate m decoration in painting and tapestry was exec in this method. In the third, or dec tive treatment, only the chief object was reali ally represented as in the two preceding meth but everything else was reduced in characte a conventional representation. It was obv that if the higher, or pictorial, treatment retained, it would be thus applied to the prin object. Realism was very appropriate effective in this manner. It could never the work to be a picture; it might be exec on any surface, it would still be decorat Most of the more elaborate foreign picture coverings in brocaded silk and tapestry from designs carried out in this method. T was, therefore, corresponding to the gra reduction of realism in the three method gradual increase in artificial arrangem Realistic representations had their place ir (*a*) Important positions, *e.g.* the centre of a or a cabinet; (*b*) Non-functional portions objects, *e.g.*, panels; (*c*) Movable objects, pictures; and such drapery as tapestries figured brocade-silks, whose evident cost wa excuse for their aim at realism, and would prevent their being lavishly applied. Real representations, in any of the three degree realism, should not be repeated in the s design. When there was repetition, and it produced *by hand*, as in embroidery, it would treated in the second or third degree of reali Where, however the repetition was mechani the details should be generalised. Passing o consider conventionalism, Mr. Stannus obser that in absolute conventionalism, the whol each object is represented in outline. Th are, however, degrees in reduction, from complete realism to absolute conventionali corresponding to the reduction in the avail appliances. With each lessening of applian such as the substitution of mechanical reproduc for handwork, and the replacement of colour flat tint, two results ensued: the student made ambitious efforts, and accentuated more stron the characteristics capable of being portra by the mode of expression available. Thus loss of colour or light and shade was replaced greater clearness in the drawing. The degree of conventionalism arose from the rest tion in the number of available pigments, exemplified in some Japanese paintings and majolica ware, or from the loss of graduat and shading, the flat tints only being availa Where, as in wall-paper designs, the artist reduced to flat tints of colours, his ingenuity taxed to give the necessary clearness. simplest or blot method of effecting this wa use different tints for the various parts o plant, such as a pink for the flowers, a green the leaves, and a brown for the stems; but th while it would give the general shape or mass each part, was inadequate to show the in drawing and details. Each leaf or other feat might, by a second method, be represented separate pieces, with the ground show through. It might be objected that a real was not in separate pieces; but the eye wo take in the several parts as one whole, and t was one of the concessions of technical limi tions which formed the truest conventionalis Variations in the breadth of the grou showing through the parts of a leaf prop tioned to the relative breadths in nature wo aid in the effect. This method of showing ground between the parts was termed "vo ing" from the practice in Heraldry. T tints might be effectually used, one for givi mass, the other for shadow or texture, and suggestive method of employing two tints used by the Japanese, who adopted a dark to represent the upper surface and a light one the lower surface of leaves. The outline (whi in ultimate conventionalism was the sole su vivor) was often very useful when superadded the intermediate degrees, not only for clearn of drawing and distinctness of pattern, but colour and breadth. An outline of any tint the effect of attaching the pattern to the grou thus giving steadiness, and, further, of recognis the surface. The second degree of conve tionalism resulted from either the reduction graduated monochrome—a process often appli



NEW OFFICES · WALHAM GREEN · MESSRS HASTILOW and ALLEN, ARCHTS 6 PUTNEY BRIDGE PARADE PUTNEY S.W.

to painted fans and to wall-papers, or the reduction to graduated monochrome in black and white —of which most of the Limoges enamels were good examples. A third degree of conventionalism resulted from further restrictions in available appliances, such as one flat mass tint on a ground of another mass tint, or to a black mass tint on white. Where all the subject was in one flat tint, the effect was somewhat dull; but variety of appearance and some approximation to nature might be produced by combining the two methods of the mass-blot and the outline. In such a treatment the flowers or fruit should be represented by one method, and the leaves and stems by the other. The fourth and ultimate degree of conventionalism resulted from the severe restrictions in available appliances to outline, either of several colours or of one colour only, which brought the pattern-artist to his last resources. As he could now only trust to outline for effect, the necessity of careful study was now most strongly felt. In outline-work the student should search for and emphasise the difference in drawing between the different parts of the plant. He might exaggerate the serrated edge of the leaf, to distinguish it from the delicately-undulated petal-edge. Departure from the reality would be condoned if the pattern were good, for the aim was not a botanical diagram, but a pattern. Variety in breadth of outline was a resource by which a clear and artistic effect might be produced. This variety in breadth could be regulated either by the light and shade system (much used in architectural drawing twenty years ago, and termed back-lining), or by the mass-line system, under which a weak line was used for the objects furthest from the spectator, and a strong line for those which were nearest, in direct ratio to distance or nearness. A further development of the latter method was to draw the circumscribing lines a little more strongly than the inner lines of an object, each being graduated according to relative distance. In conclusion, the lecturer emphasised the points that conventionalism lay not in changing the natural growth to some preconceived idea of the student, but in rendering all the beauty which was possible with the limited technical means at disposal. Further, limitation of means did not necessarily involve stiffness of attitude, though some had so associated the two ideas that the term "conventional" had fallen into bad repute. With all the loss and restriction of means, there would always remain the power to draw; and thus to endeavour to utilise some of that infinite wealth of beauty which lay around us.

NEW OFFICES, WALHAM GREEN, FULHAM, S.W.

THESE premises have been recently erected, adjoining the new branch of the London and South-Western Bank, for the firm of Messrs. Boyton and Pegram, auctioneers and surveyors. The building is constructed in red brick, with Portland stone dressings, the internal office fittings being entirely of the best English walnut. Our illustration is from a drawing by the architects, Messrs. Hastilow and Allen, and the works have been carried out by Mr. David Seath, builder, under their supervision, at the cost of £1,200.

THE VICTORIAN ARCHITECTS' REGISTRATION BILL.

WE give the draft outline of the Bill for the Registration of Practitioners in Architecture, promoted by the Royal Victorian Institute of Architects, with the cordial consent of outside practitioners, in the present session of the Victorian Legislature:—

WHEREAS it is expedient that provision be made for the Registration of persons qualified to practise as Architects in the Colony of Victoria.

Be it therefore enacted, &c., &c.

1. A Council shall be established, styled "The General Council of Architectural Education and Registration of Architects Entitled to Practise in Victoria," hereinafter referred to as the "General Council."

2. Members of General Council to be eight in all—three nominated by the Royal Victorian Institute of Architects, one by the Architectural and Engineering Association of Victoria, one by the Melbourne University, one by the Governor-in-Council, and after registration has been completed, two by the general body of registered practitioners. Persons nominated to serve on the first General Council to satisfy the Attorney-General that they are qualified to be registered under this Act. Each member of subsequent General Councils to be a registered practitioner.

All members of first General Council to hold office for four years from appointment, and thereafter one member (not being one appointed by Governor-in-Council or by the Melbourne University) to retire in each year, but to be eligible for reappointment.

3. Duties of General Council.—To keep a register of qualified Architects; to remove names therefrom for misdemeanour or disgraceful professional conduct, &c.; to direct the holding of examinations in architecture; to appoint examiners in architecture; to make all necessary regulations for the proper carrying out of the purposes of the Act; names and addresses of all newly registered practitioners to be published within one month of registration in the *Government Gazette*, and in the month of September in each year a complete list to date to be therein published.

4. Persons qualified to be registered at the time of the passing of this Act:—

(1.) Those who, at date of the passing of this Act, are fellows or associates (other than honorary fellows or associates) of the Royal Institute of British Architects, or of the Royal Victorian Institute of Architects.

(2.) Any person of the age of 25 years who, for the three (3) years immediately preceding the passing of this Act, was *bond fide* engaged in practice as an Architect in the Colony of Victoria as a principal.

(3.) Any person of the age of 25 years who has served as pupil or assistant to an Architect, or has been in practice as an Architect, all or either, for seven (7) years in the aggregate prior to the passing of this Act. Classes 1, 2, and 3 to satisfy the General Council, by such evidence as it may require, of their right to registration under these provisions.

(4.) Application for registration under this Section 4 must be made within six months after passing of this Act.

5. Persons entitled to be registered after passing of the Act must:—

(1.) Be 21 years of age.

(2.) Have served apprenticeship (indentures) of four years with registered practitioner and passed qualifying examinations except as hereafter mentioned.

(3.) A person who before passing of this Act has entered upon or completed apprenticeship for a shorter term than four years with a master qualified to be registered under this Act may serve the additional period to make up four years with a registered practitioner, and shall pass prescribed qualifying examination.

(4.) Any person of the age of 25 years who has been engaged in *bond fide* practice as an Architect in the Colony of Victoria as a principal for a period of less than three (3) years but not less than twelve (12) months prior to the passing of this Act shall, on passing the prescribed qualifying examination, be entitled to be registered.

(5.) Any person of the age of 25 years who has had not less than seven (7) years' experience in architectural office work to the satisfaction of the General Council, and has passed qualifying examination, shall be entitled to be registered.

(6.) Nothing herein contained shall prevent the General Council from reducing the term of architectural office experience required in Clause 5 prior to examination to not less than two (2) years in the case of persons of the age of 25 years who can produce to the General Council such certificate or diploma of a University or Technical School as may be recognised by them as of sufficient value to entitle such a person to this reduction of office service, provided that such University or Technical School experience is of not less than three (3) years' duration.

(7.) Provided that any person, whether a British subject or not, who either is or is not domiciled in Victoria, but who has practised as a principal Architect elsewhere than in Victoria, showing to the General Council that he holds such a certificate, diploma, or other document as may be recognised by the Council as furnishing sufficient guarantee of the possession of the requisite knowledge and skill for efficient practice as an Architect, and who can show that he is of good character, shall, on payment of registration fees, be entitled without examination to be registered under this Act.

6. Every person registered under this Act shall be entitled to practise as an Architect in any part of the Colony of Victoria, or, subject to local laws, any other part of Her Majesty's dominions, and to demand and recover in any Court of Law, with full costs of suit, reasonable charges for professional services, advice and visits, travelling and incidental expenses.

(1.) In the absence of any agreement as to charges, the schedule of charges published by the Royal Victorian Institute of Architects, as detailed in Schedule hereto, to be adopted.

7. After the day of no person shall be entitled to recover any charge in a Court of Law for professional services as an Architect rendered within the limits of the Colony of Victoria unless upon the trial he shall prove that he is registered under this Act.

8. Nothing in this Act shall interfere with the right of a duly qualified engineer to prepare plans for and superintend the erection of such buildings as are essential to any engineering work that may come within the scope of his practice.

(1.) A duly qualified engineer for the purposes of this Act shall mean one holding diploma or certificate as a corporate member of the Institute of Civil Engineers (London), or as a Water Supply Engineer under the Irrigation Act of Victoria, or as a Municipal Surveyor under the Local Government Act of Victoria or as Master of Civil Engineering of the Melbourne University, or other diploma or certificate which in the opinion of the Council is of equal value to any of these.

9. Provided also, that on and after the passing of this Act, it shall not be lawful for any public body to appoint any unregistered person as Architect or as Building Surveyor to any such body or institution.

10. On and after the day of the words "legally qualified Architect," "duly qualified," or any words purporting a person recognised by law as a practitioner in Architecture when used in any Act of Parliament, shall be construed to mean a person registered under this Act.

11. After the day of no certificate required by any Act now in force or that may hereafter be passed or that is required by custom from an Architect shall be valid unless the person signing the same be registered under this Act.

12. Provision to be made for penalties on unregistered persons practising for fee or reward or using title of Architect. The Act to apply to the whole of the Colony of Victoria.

ARCHITECTURAL & ARCHÆOLOGICAL SOCIETIES.

Manchester Society of Architects.—The awards of prizes in the students' competitions have just been made by the council. The society's first prize, of £10, goes to Mr. Roger Oldham; and the second prize, of £5, to Mr. A. Jennison. Mr. H. E. Sterry has gained Mr. Holden's prize of five guineas.

Birmingham Architectural Association.—The session of the above association opened on Tuesday evening last, when a good number of members were present to hear the address delivered by Mr. W. Hale, F.R.I.B.A., the newly-elected president. The business of the meeting was opened by a hearty vote of thanks being unanimously accorded to Mr. T. Naden, the retiring president, for his able and untiring services to the association during the three years in which he had held that office. Mr. Hale then delivered his presidential address, in which he asked the members to consider that there is but one true meaning of the term architecture, and that the practice of architecture was an art resting on a scientific basis and not a mere business, and pointed out that a building might be well or ill-planned and soundly constructed, and yet be devoid of architecture; but that it was essentially a part of good architecture that the building should be well planned and built. Mr. Hale then urged that good architecture could not be obtained by mere antiquarianism, and that the study of old work should be made with the view of adapting the principles which produced good results to the needs of modern times, and this could not be done by mere following of precedent, and that good results could only be obtained by basing the artistic elements of architecture on the scientific laws which should govern the planning and construction of modern buildings. In looking to the future, Mr. Hale thought that there was much reason to hope for better things, for though architecture could not be considered level with the times, the work of to-day is greatly better than that of 30 years ago, and the junior members of the profession are enthusiastic, and have greater opportunities than their predecessors. Though, on the other hand, he felt that the general public understood nothing of architecture, and he would like to see some education given in schools in the elements of architecture. Mr. Hale also spoke in favour of a suggestion which had been made, that an "artist architect" should be appointed by city authorities to approve the designs of new buildings. The usual vote of thanks, followed by some discussion, brought the meeting to a close.

ARCHÆOLOGICAL.

Archæological Discoveries at Chester.—The Duke of Westminster presided at a meeting of the Chester Archæological Society on Monday night, at which Mr. F. F. Benson, of King's College, Cambridge, reported the result of his excavations during the past six weeks in the North Wall at Chester. The lecture was illustrated with representations of half a dozen tombstones found in the wall, from which Mr. Benson concluded that the Second Legion had undoubtedly been stationed at Chester. He also mentioned that while only one or two at most of coins of emperors earlier than Vespasian had been found during the excavations, no fewer than 17 Vespasian coins had been discovered, from which he concluded that it was in the time of Agricola that Chester first became a Roman station. He had come to the conclusion that the wall was undoubtedly Roman. Appeals were made for further support to enable these excavations to be continued.

New board schools for 1,110 children are about to be built in Beeches-road, West Bromwich, from plans by Mr. Alfred Long, of that town.

It was reported on Tuesday to the Artisans' Dwellings Committee of the Liverpool Corporation, that during the past year the Victoria-square dwellings had produced a net return of £2 11s. 9d. per cent., and the Juvenal-street buildings 4 per cent.

Building Intelligence

Coventry.—The request of the church au ties "That in order to preserve a permaner cord of the extent to which St. Michael's st leans towards the north-west, Mr. Coun Andrews be requested to mark two points the pavement of the tower," was carried effect on Thursday in last week by him assistance. The measurements prove tha attempt was made by the original builder t out the work exactly. For instance, the story windows appear to be of the same siz pattern; yet during the restoration it was f that no two were exactly alike. A similar of things is the case with the tower. Its walls are of unequal lengths, and consequen is not an exact square. The western wa about 3in. longer than the eastern wall. method of finding the centre of a squar drawing diagonals between the four co not being applicable in this case, the c of the tower was found by measuring at angles from the centre of the four side w Measurements were then made from the walls to discover the point occupied by plumb line when suspended from a point 2 from the ground, and the point beneath centre of the weathercock, 290ft. high, next adjusted, and two small holes drilled in pavement, one at the centre of the tower, the other under the centre of the weatherc these will be marked by brass plates. distance apart is 3ft. 5½in. Finally a true and west line was marked upon the paven The sides of the tower do not correspond the four cardinal points. The new Ordn plan of the city shows a deviation of degrees, and this being tested was found t exact.

Ebbw Vale.—Christ Church was reopene Tuesday week, after undergoing alterations improvements. The interior has been red rated, and the tower has been completed new wooden floors, large double doors, and ing windows glazed. The Welsh church un neath the chancel has also been renovated. church consists of a large nave and aisles, massive columns to arcades, and apsidal cha raised a good height above the nave, approa by a flight of bold steps. The works have carried out from designs, and under the su intendence, of Messrs. Kempson and Fowle Llandaff; the builder was Mr. Morgan, of E Vale, and the decorator was Mr. J. E. Mor of Canton, Cardiff.

Leeds.—Two new Board schools were mally opened on Tuesday. One of these day industrial school, situated in Czar-st Holbeck; and the other an elementary scho Harehills, Roundhay-road. The Czar-st day industrial school is of two stories. ground-floor contains the dining-room, kitc scullery, store-rooms, disinfecting closets, b rooms, and shallow swimming-bath. The u floor provides an assembly-hall and schoolro certified for 300 children. There are sepa approaches for the boys and girls, and sepa staircases. The dining-room is 76ft. by 3 and 16ft. high. There is a large workshop, covered playgrounds beneath it. A caretak house has been erected in one corner of the The heating is on the low-pressure steam syst this school being the first belonging to the L Board in which steam-heating is introdu The apparatus for cooking has been supplied Messrs. Benham, of London. The other plu ing work, as well as glazing, has been car out by Mr. Storey, of Leeds. The princ contractors have been — for the brick masonry and carpentry and joinery, Mes Gould and Stevenson; for the ironwork, Mes Taylor and Parsons; for painting, Mr. Thompson; for slating, Messrs. Atkinson Son. The furniture has been supplied by Mes Illingworth, Ingham, and Co. The works h been carried out from the plans of Mr. Landl architect to the board. The cost of buildi and fittings was £7,000.—Harehills Schoo planned on the central-hall system, and is stories in height. The central halls mea 74ft. by 32ft., and have lofty ceilings. classrooms on the ground-floor have 16ft. c ings, and the upper-floor classrooms are 16ft the collar-beam. They are planned to hold s scholars, and in some instances, by mean sliding partitions, two classrooms can be thr

ether. The total accommodation is for 1,410 olars, exclusive of the central halls. The lding is constructed of brick, with stone ssings. The principal contracts have been ried out by Mr. James Wood. The whole s been carried out under the superintendence Mr. Landless.

Morriston.—The new church of St. David s consecrated on the 15th inst. by the Bishop St. David's. It was designed by Mr. E. M. uce Vaughan, Cardiff, and accommodates 600 rshippers. Mr. Wormleighton, of Cardiff, ried out the carving. The pulpit was made Mr. Wm. Clark, of Llandaff, and the reredos d altar were made by Messrs. Jones and illis, and are both executed in oak, from the signs of the architect. The work has been rried out under two contracts—that for the ndations by Messrs. Jenkins Brothers, of ach-street-yard, Swansea, for £250, and for e main structure by Mr. Joseph Gwyn, of etty, Swansea, for £3,380; but the total cost the work, including boundary-wall and drain, ll be about £3,700.

Newport, Salop.—The parish church was re-ened on Thursday, the 8th inst., on the com-etion of the second section of restoration. The st portion, completed six years since, cost ,600. The present work comprises the re-uilding of the north aisle, the erection of a new stry, and the re-fitting of the chancel. In the rth aisle, the old brick walls have been taken wn and rebuilt from the foundation, divided to six bays by buttresses, surmounted with ocketed pinnacles, the walls being finished ith battlemented parapets. In each bay is in-rted a richly-traceried triplet-window filled ith Cathedral glass. The roof is framed in k timber, and covered with lead. The new k benches stand on a floor of pine blocks, and e passage is laid with Terrazzo marble. The me description of flooring has been laid through-ut the church. The new walls are built of odsall stone. Formerly the nave level was rried right through, but the new floor of ancel has been graduated in three levels. The nctuary is floored in Roman marble mosaic. he altar dais is of marble, the front being in-id with an inscribed text. A canopied double dilia is built into the south wall, and a cre-ence niche on the north side. A reredos in aen stone has been erected. The deal roof has een re-placed by a new one of oak divided into ur bays by hammer-beam trusses supported on rved stone corbel heads. The roofs through-ut, as well as the seating, are now of oak. The ntire work of restoration from the commence-ent of the first portion has been carried out y Mr. G. I. Muirhead, of Newport. The work as been under the direction of Mr. John Norton, .R.I.B.A., of London. The cost of the second ortion of the restoration is £5,000.

North Stainley, Yorkshire.—This church as just been consecrated after being closed for me months for alterations and additions. The ortion existing prior to enlargement was built in 840, and consisted of a square room 36 by 24ft., vith flat ceiling. This is now the nave, and to t have been added a chancel 24 by 17ft., vestry 13 y 8ft., organ chamber, and south porch. The vork is simple 14th-century Gothic, the chancel idge being kept same height as nave, and which dds to the internal effect. The old east window s transferred to the west gable, which before vas a blank wall. The new chancel is lighted y a three-light east window, with similar one n south side. Under the east window inside is plain stone panelling forming a reredos filled vith mosaic in three divisions of the Annuncia-ion, by Davison; below comes the altar shelf, nd in south wall are placed double sedilias redence, and piscina. The roof is of pitch-pine, eft clean, formed with principal trusses and offits of rafters panelled, the old roof over ave being similarly treated. The stalls are of Carter and Co. A new moulded stone arch eparates nave and chancel; also a low stone screen. The altar is raised five steps, and the church warmed and lighted throughout. The cost has been £1,000. The work has been carried out by Messrs. Kay and Sons, of Rainton, and Messrs. Metcalfe and Sons, of North Stainley, Mr. Withers being the architect from whose de-signs and superintendence the work has been carried out.

Shorncliffe.—Operations have already com-menced in the Cavalry and Artillery lines, Shorn-cliffe Camp, by the Reconstruction Department, some of the buildings already commenced being new officers' quarters, mess and residences, en-largement to sergeants' mess and recreation esta-blishments, these works being carried out by Messrs. Wallis, of Maidstone. A riding-school, granaries, and six blocks of troop stables are also in course of erection by Messrs. Patrick, of Chatham. Other works are in the course of pre-paration to follow. These works are being carried out under the supervision of Mr. Walter Mitchell, C.E., Clerk of Works to H.M. Government, under the direction of the Commanding Officer of the Royal Engineers.

Welsh St. Donat's Church.—This interest-ing 14th-century church was reopened on Wednesday week, after undergoing a thorough restoration. The roof has now been restored in oak, the walls newly plastered, the tower pointed and rebuilt where necessary; new wood floors and ceiling have been furnished in the tower. Godwin's tile floors have been placed in the chancel, and a wood-block floor under the chairs on concrete. A new oak pulpit, altar, lectern, font-cover, and chair have been fur-nished; all the windows have been newly glazed in fret lead. New seats have been placed in the chancel; two new windows have been provided, as also altar-cloth and hangings. A new stove for heating, and hanging coronas fitted with lamps for lighting the edifice, and new oak doors with wrought-iron hinges. The exterior has also been pointed. The nave has been fitted with chairs, in place of the old high seats. The cost of the work has been £700. The contractor was Mr. W. A. James, of Cowbridge. The archi-tects were Messrs. Kempson and Fowler, of Llandaff.

COMPETITIONS.

Cotfold Asylum, Somersetshire.—At the meeting on Thursday of the Somerset County Council, formal approval was given to the plans of Messrs. Giles and Gough for the erection of the proposed Western Lunatic Asylum at Cotford, near Taunton, and the asylum committee was given authority to take the necessary steps for the carrying out of the building, with any altera-tions suggested by the Commissioners which might meet with the views of the committee. The Council also authorised the committee to raise a further sum of £50,000 upon debentures when necessary.

Widnes.—In a recent limited competition the plans of Mr. Thomas W. Cubbon, architect, of Birkenhead, have been unanimously adopted for new lecture-hall and Sunday-school buildings in connection with Milton Congregational church, Widnes, accommodation being provided for 550.

CHIPS.

The parish church of St. Olave, Hart-street, E.C., will be opened by the Lord Mayor, after ex-tensive restoration, on Friday in next week.

A scheme for draining the slate quarries in Nantlle Vale, which have been flooded by the Llynfi river, has been prepared. The estimated cost is £12,000, which is to be applied to the opening of the river from the lake for a distance of three miles, thus diminishing the force of the water. Extra hands have this week been taken on at the Penrhyn quarries. The demand at the Llanberis quarries keeps brisk.

St. Michael's Hamlet Church, Liverpool, which has been redecorated, was reopened on Sunday. The decoration has been carried out by Messrs. G. H. Morton and Son, Bold-street, from the designs and under the personal supervision of Mr. G. H. Morton, jun., M.S.A.

At a special meeting of the rural sanitary authority of the Wakefield Union, held on Wednes-day, the 30th ult., it was unanimously resolved that the salary of the engineer and waterworks manager, Mr. Frank Massie, Assoc.M.Inst.C.E., be increased to £250 per annum from the 29th ult.

The Lord Mayor of London on Friday opened the new buildings which have been erected by the Norwich Asylum and School for the Indigent Blind. The original building in Magdalen-street, which dates from 1805, has been reconstructed and considerably enlarged at a cost of £6,340.

At a meeting of ratepayers of the township of Frodsham, on Thursday night in last week, it was resolved to recommend the Runcorn rural sanitary authority to reject the proposed scheme of water supply for Frodsham. The scheme is one submitted by Messrs. Timmins, the estimated cost being £3,600. No alternative scheme was suggested.

TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the Building News, 332, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contribu-tions.

Cheques and Post-office Orders to be made payable to J. Passmore Edwards.

TERMS OF SUBSCRIPTION.

One Pound per annum (post free) to any part of the United Kingdom; for Canada, Nova Scotia, and the United States, £1 6s. 0d. (or 6dols. 30c. gold). To France or Belgium, £1 6s. 0d. (or 33fr. 30c.) To India (viâ Brindisi), £1 10s. 4d. To any of the Australian Colonies or New Zealand, to the Cape, the West Indies, or Natal, £1 6s. 0d.

ADVERTISEMENT CHARGES.

The charge for Competition and Contract Advertise-ments, Public Companies, and all official advertisements is 1s. per line of Eight words, the first line counting as two the minimum charge being 5s. for four lines.

The charge for Auctions, Land Sales, and Miscellaneous and Trade Advertisements (except Situation advertise-ments) is 6d. per line of eight words (the first line counting as two), the minimum charge being 4s. 6d. for 40 words. Special terms for series of more than six insertions can be ascertained on application to the Pub-lisher.

Front Page Advertisements 2s. per line, and Paragraph Advertisements 1s. per line. No front page or paragraph Advertisement inserted for less than 5s.

Situations.

The charge for advertisements for "Situations Vacant" or "Situations Wanted" is One Shilling for Twenty-four Words, and Sixpence for every eight words after. *All Situation Advertisements must be prepaid.*

Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page advertisements and alterations in serial advertisements must reach the office by Tuesday Morning to secure inser-tion.

NOTICE.

Bound volumes should be ordered early (price Twelve Shillings each), as only a limited number are done up. A few bound volumes of Vols. XL., XLI., XLVI., XLIX., L., LI., LIII., LIV., LVIII., LIX., and LX. may still be had, price Twelve Shillings; all the other bound volumes are out of print. Most of the back num-bers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

Received.—W. B. W. and Co.—W. G. and Son.—B. of B.—D. D. and Co.—L. R.—J. C. E.—B. T. Co.—W. W. B. H. C.—R. Bros.

"BUILDING NEWS" DESIGNING CLUB.

Received.—F. German, D. McCubbin, Jas. H. Shaw, Otis D. Black, J. T. Lawrence, F. E. Bagshaw, E. M. Robson, T. H. Pope, Sidney Naish, J. Llewellin Smith.
Anxious One.—(The award will be published next week, as usual.)

Intercommunication.

QUESTIONS.

[10650.]—**Floor Joists.**—In a back number of the "B. N." (July 15, 1881), I find the following formula for the size of floor joisting, which also gives the distances from centres :—

$$d^3 = i\,b\,d^3$$

c = distance apart
l = the length of beam } in feet
i = a constant
b = breadth
d = depth.

Would some of your readers work out the depth of joists over 14ft. span, at 18in. from centres, and 2½in. thick, by this formula?—Journeyman.

[10651.]—**Rome.**—Would any of your readers kindly say which are the best books on Rome, and where the most complete history and description of St. Peter's is to be found?—A. W. J.

[10652.]—**Lofty Buildings.**—What are the laws now in operation as to the heights of ordinary buildings in the Metropolis, and can compensation be claimed by opposite owners for loss of light and air in the case of newly erected buildings of unusual height? If so, how can a claim be established?—Mavis.

REPLIES.

[10634.]—**Brick as a Building Material.**—If "M. M." reads my remarks aright, he should find that the sense intended to be conveyed is, that as there are gene-rally more joints in a brick-built wall than in a stone-built wall, there is consequently more likelihood of there being more possible defective joints in the former than in the latter—and where is the building that has no defective joints? Good, hard, well-burnt bricks are incomparably superior to stone as a building material.—Brickwork.

[10640.]—**Sea-Sand in Mortar.**—It is a well-known fact that sea-sand in mortar (or plaster) does attract

hygrometric moisture, especially when the atmospheric moisture is excessive, as just prior to a rainfall. The resulting bad effects are: Damp walls, injury to plaster and wallpapers, unsightly efflorescences, and possible rot to timbers in actual contact with walls.—Brickwork.

[10642.]—**Strong Room.**—I have built several strong rooms, and have found that cavity walls with air-bricks close to the floor inside, and discharging outside under the arch skewback were always successful. Windows are inadmissible, and gas-jets inside may cause escapes and explosions. It is therefore better to hang a portable lamp on a fork outside, with a flexible tube long enough to reach inside. Hobbs, Chubb, Milner, and others will supply strong-room doors. Never fix these till the building is thoroughly dry. Tooth out the brick-work to the rough opening. Build all in cement, and do not lay your floor or turn your arch till the roof is on, the rain will then soak away: otherwise it will saturate your arch and walls, and will take years to dry out. Build all brickwork in cement, and provide an extraction-flue with cast-iron grating built-in half-way up, to stop burglars; and if there is any danger of undermining, put a cast-iron grating under the floor, in the centre of 2ft. thickness of lime concrete. These are wrinkles obtained in building thirty strong rooms.—Robert Phillips.

[10644.]—**Joists.**—"Sap" asks the question, Which sort of three diagrams showing the patterns of the grain at the end, would be the best joists for strength and durability, and why? I can dispose of one of the questions—viz, diagram No. 3, by saying there is no such pattern in joists of deal or plank sizes, and in smaller sizes, such as battens, it would be a rare exception—one so rare that it would not merit a place in this question. I give herewith two diagrams, showing the ordinary modes of converting deals or planks from fir-trees in the Baltic, from which he will see that his Fig. 3 could not be produced. The best wood for strength is the heartwood nearest to the sap ring, from being the newest formed wood. The most desirable is the heartwood as a whole as compared with the sapwood. Diagrams Figs. 1 and 2, show the top or small ends of logs of timber, in which the sapwood freely enters into the converted deals or planks. The butt-ends would be larger, and the sapwood

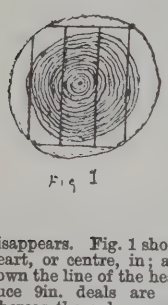


Fig 1



Fig 2

disappears. Fig. 1 shows a deal or plank cut with the heart, or centre, in; and Fig. 2 with the saw passing down the line of the heart. Trees large enough to produce 9in. deals are invariably sound at the heart, whereas those large enough to produce 11in. deals are shaken. The centre plank in Fig. 1 would have the newest and best wood on its edges, and being the most free from sap would be more acceptable than the side plank. The heart being in the centre of this plank, means that it would contain all the faults or shakes natural to the living tree, and all the "drying shakes" associated with seasoning, for if the heart is left in a piece of wood it is bound to shake or split. A better and more perfect joist would be one of those produced from the central part of Fig. 2, where the heart is practically inoperative, and the sap-wood is not pronounced. The question of quality, and the presence or absence of knots and twisted grain, has far more to do with the strength of joist than has the pattern of the grain on the end section; but as "Sap's" question does not travel to these points, any notes thereon would be out of place.—W. Stevenson, Queen's Dock, Hull.

[10644.]—**Joists.**—Fig. 1 would be the strongest section; but as it is a heart scantling, and as it is seldom they are found without heart shakes, it would not be accepted for first-class work. Fig. 2 would camber towards the heart in three directions of its length, and get hollow on the side where the annular rings are concave. Fig. 3, though not the strongest section, is far the best, as both sap and heart are cut out, and the annular rings are across the section, causing shrinkage and warping to be uniform, and enabling every defect to be seen on the largest outer surface.—Robert Phillips.

The foundation-stone of St. Andrew's (Burslem Memorial) Church at Malmesbury-park, Bournemouth, was laid on Tuesday week.

The Waterlow Park at Highgate, opened by Sir John Lubbock on Saturday, is an undulating and well-wooded area of 28 acres, forming the grounds belonging to Hertford and Lauderdale Houses. The former of these mansions has been demolished, and Lauderdale House is also condemned, being in an unsafe condition. The park has been laid out for the London County Council at a cost of £4,900, under the immediate supervision of Mr. Sexby, the surveyor of parks and open spaces.

The town council of Leamington have recently been utilising river water, under the scheme prepared by the borough surveyor, Mr. W. de Normanville, for street watering, sewer flushing, and other purposes. A committee having ascertained that the railway companies, livery-stable keepers, and those possessing gardens would be willing to use the supply if it were available, the town council decided at their last meeting to extend the mains connected with the river, to erect a tank on Newbold Hill, and lay river-water mains in the centre of the town.

Legal.

ABOUT BUILDING CONTRACTS.

It is essential that building contracts should be unlike most others, and that they should contain clauses and conditions which, to a lawyer unused to them, seem very remarkable. Where two people make a bargain about a thing they both understand, then to reduce it to a written agreement is easy enough. But where, as in building contracts, neither side really knows exactly what is going to be done, the position is peculiar. The building owner really leaves it to his architect, and the contractor, in effect, relies upon the same person for his instructions and directions; so we have the curious result that, although the contract is, in form, made between the two parties, the owner or employer and the actual builder or contractor, the architect is really a third and most important party to the whole transaction. He is the agent of the employer, besides being the judge in all things of the work to be done, and through him alone can the builder get his money. The architect works for his employer or client, the owner, and desires to please him in all things, if possible; and yet the builder is placed in his power in every respect. Perhaps the most remarkable feature of the whole arrangement is that the architect should be paid by a commission upon the total amount expended, and which total it would seem to be more to the interest of the builder than of his client, the owner, to make as large as possible. It says a great deal for the honour and honesty of all parties to this curious arrangement that it should work so well as a rule, and should so rarely bring about disputes.

The present form of an ordinary building contract is the result more of traditional usage and professional custom than of law or of logic. One could often wish that these agreements were both shorter and simpler. But the fact is that as the need arose fresh clauses and conditions have been added without much regard to what went before. Somewhat the same thing has happened in some common forms of mercantile contracts and documents, which have, however, acquired a definite meaning by long use; so with building contracts, which though curious and often confusing to the ordinary lawyer or man of business, are pretty well understood by those who are in the habit of handling them. The point is always the architect's central position between the parties as judge of both, though agent only of one, and as really the only person who knows exactly what is going to be done under the agreement that the other two have signed. Still and although these contracts are in practice construed by the custom of the profession and of the trade rather than by definite legal rules, there yet are rules of law which must and will be applied to them if they get into Court, and it is upon some of these rules that I shall hope to throw out a few useful hints in my future notes.

Fred Wetherfield, Solicitor.
1, Gresham Buildings, Guildhall, E C.

Note.—All questions for reply in this column must be headed "Building News," and must reach my offices, as above, by Thursday morning each week.

Young Beginner.—Work Done.—As your work was really done upon extras which were not included in the quantities supplied by the architect, and which were outside your sub-contract, you are not bound to get the work certified by the architect, for, as he rightly says, he has had nothing to do with what passed between you and the builder. Summon the builder for the balance as owing to you for work done and materials supplied, in the County Court.

Architect.—Agency.—Where an architect represents himself as having the authority of his employer, the building owner, to engage a quantity surveyor, when, in fact, he has not, he himself becomes personally liable to that surveyor for his charges, and could be made to pay them in an action. But if the architect could prove either an expressed or implied authority from the building owner, he would then be only acting as an agent, and so he would, of course, escape all personal liability to the quantity surveyor.

At a general meeting of the Royal Society of British Artists, held on Monday night, Mr. F. W. Davis and Mr. Sutton Palmer were elected members.

The 13th-century chancel of the parish church of Helpringham, near Newark, is about to be restored at an estimated cost of £500. Mrs. Tomlinson, of Thorpe Latimer, has offered to carry out the restoration as a memorial to her late husband.

LEGAL INTELLIGENCE.

Serious Charge of Fraud.—William Fred[e] Fryer, surveyor, Arundel-street, Strand, and s[t] to be the proprietor of a periodical called *British Building Journal*, appeared on Friday [w] an adjourned summons, before Alderman S[i] Knight, charged with obtaining money by pretences from Mr. John Frederick Edell, solic King-street, Cheapside, and he was also cha with offences under the Debtors' Act. C plainant said that the defendant came to hi July with an introduction, and stated that he interested in an estate at Greenhithe, which had purchased for £6,200, and upon which required a loan of £5,000. Defendant asked a loan of £200, but this was refused. The e was surveyed, and on July 17th a loan of was made to the defendant upon his dist assurance that there were no judgments pen or out against him. He also said he was on the surveyors of the London School Board for Lewisham district. It was afterwards discov that the whole of the defendant's statem were untrue, and that there were a numbe judgments against him, including a committa twenty days for the non-payment of a loan of issued on the 16th of July. Another judgm was registered against defendant on the 18t July, a receiving order being made against on the 12th ult. Defendant gave a chequ repayment of the loan, but it was returned paid. In cross-examination, complainant st that he had obtained judgment against the fendant in the High Court for this amo Defendant, who reserved his defence, was c mitted for trial, but allowed bail in two sur of £50, and himself in £100.

The Serious Charge against an Archit—Arthur Mucklestone Leach, 38, architect surveyor, of London Joint Stock-buildings, Sm field, and Henry Cove, coffee-house keeper, Bermondsey, were charged, on remand, at S bury, on Monday, with having, in conjunction w a man named Adams, obtained £550 from Liverpool and London and Globe Insurance C pany by false pretences. The man Adams has yet been apprehended. We gave particulars of case in our last issue, p. 561.—The case was ag adjourned, bail being refused.

Advertising Hoardings and the Build Act.—W. Terry, advertising agent, appeared Lambeth Police Court, on Friday, to a summ taken out by Mr. Thomas Chilvers, on behal the London County Council, for having erected advertising hoarding in the Station-road, W worth-road, without having first obtained license from the London County Council. Chilvers said the defendant had, without obtain a license from the County Council, and with notice, erected a large hoarding for advertis purposes. The structure in question was, many others of the kind, liable to give way dur rough weather, and perhaps cause serious inju to persons passing. Mr. Hopkins said by the the defendant had rendered himself liable to he penalties day by day. The defendant said assistant had failed to let him know the circu stances of the case.—Mr. Hopkins ordered defendant to pay a penalty of £5 and £1 3s. co

In re J. M. Ross.—The debtor, John Morgan R carries on business as a timber merchant at Cannon-street and Swedish Wharf, High-stre Peckham, under the style of J. M. Ross and Co. first meeting of creditors was held on Tuesday. T liabilities are returned in the accounts at £11,8 of which £5,740 are unsecured, with assets £2,6 The debtor ascribes his failure to depreciation in value of timber, to depression of trade by reason strikes in the building industry, and to bad deb A scheme of arrangement was agreed to un which the debtor's property becomes vested i trustee acting on behalf of creditors, a claim £2,150 being withdrawn. The creditors a appointed a committee of inspection.

A Contractor's Claim for Commission f Superintendence. — At the Alfreton Cou Court, on the 13th inst., the case was heard Henry Flear v. Mary Cupid. Plaintiff is a join residing at Somercotes, and this was a claim f £30 19s. made up of two parts, £13 9s. being d for ordinary work done, and the remainc (£17 10s.) was for superintending the work of t building of seven houses, being 2½ per cent. on t cost of them. Plaintiff had acted as contract after the first contractor (one Ashling) had faile —Walter Towson, contractor for plumbing a painting in the houses, said defendant said he w to receive instructions from plaintiff.—Mary Cupi of Basford, Nottingham, said she decided to bu some houses at Alfreton last year. She had pla prepared by an Alfreton architect. She nev authorised plaintiff to act as her agent, and did n agree to pay him 2½ per cent. on the value of t buildings. She made a contract with plaintiff to the joinery for £6 per house. She had paid hi £43.—Deputy Judge Lowe said with regard to t

m for £13 19s., he found that the plaintiff had ;ived £43, and not £38, and as the difference been paid into court, that was settled. Then h reference to the £17 10s. for superintendence, charge of 2½ per cent. was as high as that of architect; it was extortionate, and he could allow it. Plaintiff had made out his claim in h a way that he should give judgment for endant, with costs.

ARCHITECT'S CLAIM FOR RE-PREPARING PLANS.—LLS V. POLLARD.—A claim by Mr. A. H. Wills, hitect, of No. 2, Higher Belmont, Exeter, was rd at the Exeter Quarter Sessions, against Mr. derick Pollard (of the firm of W. Pollard and stationers, of North-street, in that city). The larations stated that Mr. Pollard was indebted Mr. Wills for £60 16s. 5d., balance due for work ıs and services rendered by Mr. Wills as archi- and surveyor. The defendant (Mr. Pollard) aded that, with regard to the sum of 11s., which comprised the first two items he claim, he had paid into Court 25s. in full sfaction of the claim. With regard to the residue, Pollard pleaded that he was not liable for thing at all. The defendant instructed plaintiff prepare plans for extended premises, which e accepted; but, unfortunately, very shortly er that, the strike occurred in the Exeter build- trade, and consequently no tender could be got carrying out the work. Some months after- rds, Mr. Pollard gave Mr. Wills further tructions, and he proposed so many alterations t it became necessary to make almost entirely w plans, specifications, and quantities. Mr. lls made those plans, fresh tenders were ob- ned, and one was provisionally accepted, after luctions had twice been made, but eventually scheme was abandoned. The defence was that intiff exceeded his instructions in obtaining sh tenders, and performing other works; but jury returned a verdict for the plaintiff for 3 15s., and costs, beyond the amount paid into rt (£1 5s.)

ARBITRATION AT CANTERBURY.—An important bitration case was held at the Guildhall, Canter- ry, on Wednesday and Thursday in last week, Professor Henry Robinson, M.Inst.C.E., sitting arbitrator. The action was brought by Mr. nnings, as engineer for certain sewerage works, ainst the city corporation. The latter body thheld certain moneys on the ground that as sir counsel contended that Mr. Jennings had led to use his skill in executing the work, and at he was liable either for the ignorance or want want of skill he showed in neglecting to dis- arge his duties properly. For the claimant it as admitted that this was his first independent dertaking, but it was urged that he was in the sition of a *quasi*-arbitrator, and that if fraud ere not alleged, the corporation could not go hind his certificate as engineer. The arbitrator s reserved his decision.

IN RE J. REED.—John Reed, a builder, of ymouth, has passed his examination in bank- ptcy; but on the application for his discharge, presentations were made to the judge, who dered a further examination into the affairs of e estate. That took place on Friday at Stone- use Bankruptcy Court, before Mr. Registrar ridgman. Debtor said he first proposed to sell his siness to a company in February, 1890. He did t enter the payments on account of mortgages in s cash-book, as he did not wish his clerks to be gnisant of the transactions. He made private emoranda of them. He did not inform Mr. John ysaght, of Bristol, a sub-contractor, that he had ld his business to a company, and he allowed Mr. ysaght to go on executing work for him. He ceived for work done by sub-contractors the sum £4,300, £2,800 of which was for work by Mr. ysaght. He did not pay the money to the sub- ntractors, as the engineer condemned the work. is insolvency was due to the delay of the sub-con- actors at Bristol and the severity of the engineer. his closed the inquiry. Bankrupt will apply again the judge in November for his discharge.

RECOVERY OF ARCHITECT'S FEES.—WRIGHT V. ALMER.—The plaintiff, Mr. C. P. Wright, an ccountant in the City, sued the defendant in the ord Mayor's Court on Tuesday, to recover 85 6s. 10d., being the amount of his charges and xpenses in acting as arbitrator in a case in which ıe defendant was then the plaintiff. Mr. Spokes, opening the case, said that up to about three ears ago there was considerable doubt whether an rbitrator could recover any fees; but a case was ecided about that time in which it was laid down ıat a barrister could not recover fees under any rcumstances, even if he acted as arbitrator, but a y arbitrator could. The present defendant had rought an action in this court to recover £1,250 ommission, arising out of the profits on a trans- ction in land in Victoria-street, Westminster. The laintiff was appointed arbitrator. He held ten ttings of three hours each and wrote many letters, ıd finally he made his award, which was in a sealed ıvelope in court, and would be opened on payment of the plaintiff's fees. The plaintiff had charged 60 guineas for his own fees, and £22 6s. 10d. expenses for legal assistance. Under the direction of the learned Judge (Mr. Roxburgh) the award was opened, and it was found to be against the present defendant, who was condemned in the costs of the arbitration. There was no appearance on behalf of the defendant. The jury found for the plaintiff for 40 guineas, and for the £22 6s. 10d. for legal expenses.

CHIPS.

Steps will be shortly taken for carrying out the long-contemplated reflooring of the nave of Manchester Cathedral. It is probable that the reflooring will be carried out in black and white marble.

An ornate oak lectern has just been presented to Brooking Church, Totnes. It was designed by Mr. Edmund Sedding, of Plymouth.

The directors of the Blackpool Tower Company, at their meeting on Tuesday, accepted the tender of Messrs. Robert Neill and Sons, Strangeways, Manchester, for the massive concrete foundations for the tower. The work will be proceeded with immediately, under the direction of the architects, Messrs. Maxwell and Tuke, of Princess-street, Manchester. The contracts for the steel superstructure, 500ft. high, will be placed shortly.

A new theatre, concert hall, and assembly hall in the North Bailey, Durham city, was opened last week. It seats 700 people, and has been built from plans by Mr. William Rudworth, of London. Messrs. G. Gradon and Sons, of Durham, were the contractors.

The Walsall Town Council has sanctioned the purchase of 3,384sq.yds. of land in Lichfield-street from Lord Hatherton, as the site for public baths, at the price of £1 per yard.

Sir John Llewelyn, mayor of Swansea, has intimated to the vicar of that town his willingness to contribute £1,000 towards the proposed erection of a cathedral in the borough.

Mr. C. Purdon Clarke, C.I.E., F.R.I.B.A., has succeeded Mr. G. Wallis as Keeper of the Art Collections at South Kensington Museum. Mr. Clarke retains his appointment as Curator of the India Museum, in the Exhibition-road.

The London County Council have given the contract for the Blackwall Tunnel to Messrs. S. Pearson and Co., who tendered to do the work for £871,000. Only four tenders were received, the highest being for £1,112,000 6s. 3d.

The Swansea Corporation decided on Wednesday to go to Parliament for permission to spend £230,000 on a new water scheme, the new source of supply being the watershed of the river Usk. Thus an estimated additional supply of 5,500,000 gallons a day would be obtained.

The new wing of the Printers' Almshouses at Wood-green was opened by the Duchess of Albany on Saturday. The original buildings were erected from designs by Mr. Philip Welch, and the present and some previous additions have been made in harmony with the main structure under the superintendence of Mr. Charles Bell. The entrance-gates have been made by Messrs. Lockerbie and Wilkinson, Exeter-street, Birmingham.

The foundation stone of a new church at Barnardtown, Newport, Mon., was laid on Tuesday by Lord Tredegar. The designs, prepared by Messrs. Graham, Son, and Hitchcox, are for a building in the plain Gothic style, with random rock-faced Pennant-stone walling and Bath-stone dressings. The roof will be open timber and matchboard, covered with slates. Seating accommodation will be provided for 525 persons, and by making use of flat seats, there will, in an emergency, be room for 620. The internal walls will be stuccoed and the woodwork stained and varnished. The cost of the work will be £3,500, Mr. Charles Locke, of Newport, being the contractor.

A long and excited meeting of the Weymouth town council was held on Tuesday, to discuss a report of the borough surveyor recommending a scheme for the drainage of the borough at a cost of £18,000, the outfall to be into the sea near the Nothe Fort, instead of, as at present, into the backwater and harbour. The mayor proposed the adoption of the scheme, which was vehemently opposed on the ground that the scheme would increase the debt of the borough from £121,000 to £172,000, and was unnecessary, as the health of the town stood very high in the Registrar-General's return. The rejection of the report was carried by ten votes to six.

It was reported to the Paddington Vestry on Tuesday that the directors of the Regent's Park Canal Company had given instructions to have removed the advertisement hoarding erected beside the Regent's Canal in Bloomfield-road, which had been strongly objected to by residents in the neighbourhood.

Our Office Table.

A CORRESPONDENT complains that he finds it is impossible to consult, or even inspect, any mounted map of the Metropolis taken from the Ordnance Survey on the scale of 25in. to the mile, except by a fee to a private firm. Such a 25in. map, as is well known, exists; but even in the map department of the British Museum, it is cut up and bound in such small sections that measurements taken from it could scarcely be accurate. At the City Guildhall, the correspondent remarks, "there is a tattered representation of London on a scale of 4in. or 6in. to the mile, which would be a disgrace to the office of a fourth-rate solicitor." Such a corrected mounted map is, he adds, an urgent want, which some of our public or parochial bodies, or City companies could surely remedy. Such a chart would only occupy a wall-space of 14ft. by 20ft. By the way, it will be remembered that the London School Board find it impossible to procure an up-to-date map, even on the six-inch scale, the outlay on a surveyor and staff for keeping such a map abreast of improvements and new streets within the metropolitan area being officially estimated by Mr. Stanford at £500 a year, and negotiations have been in progress between the School Board and the London County Council, the proposal being that each of these bodies should contribute £100 per annum to Mr. Stanford for revising his map year by year, so as to render it available for municipal and departmental purposes.

THE School of Art Wood-Carving, City and Guilds Institute, Exhibition-road, South Kensington, has been reopened after the usual summer vacation, and we are requested to state that one or two free studentships in both the day and the evening classes are vacant. These studentships are maintained by means of funds granted to the school by the City and Guilds Institute. To bring the benefits of the school within the reach of teachers, a remission of half fees for the day and evening classes are made to them. Forms of application for the free studentships, and any further particulars relating to the school, may be obtained from the manager.

MR. LOUIS FAGAN, of the Print Room, British Museum, delivered a first lecture on line engraving at St. George's Hall, Liverpool, on Tuesday evening. Mr. Fagan began with some remarks upon the art in question, not from an archæological, but from a technical, point of view. Some of the earliest engraved portraits produced in England were reproduced by the optical lantern. Among these were shown likenesses of Matthew Parker, Archbishop of Canterbury, engraved by Hogenberg, perhaps the first engraved portraits executed in England. Mr. Fagan showed also plates by Elstracke, Delaram, the Passes, Rogers, Payne, and Faithorne, who inaugurated the era of English engravers. The lecturer proceeded with a series of engravings by Sir Robert Strange, born in 1721. The interesting and exceedingly scarce portrait of Prince Charles James Edward, the Young Pretender, though feeble in execution, afforded an example of what constituted the highest standard of art in Scotland at that period. The next engraver brought into prominent notice was William Woollett, of Maidstone, born in 1735, the son of a flax-dresser. The "Fishery," the "Death of General Wolfe," the "Battle at La Hogue," the "Niobe," and the "Solitude" were among the other illustrations projected upon the screen. Finally, the lecture finished with William Sharp, born in 1749. Sharp's works are marked by a vigour impossible to surpass. The illustrations included the delicately engraved portrait of George IV., when Prince of Wales, as well as the "St. Cecilia" and the "Doctors of the Church," a plate in which, contrary to his habit, Sharp scarcely put any etching work into the figures.

THE next general meeting of the Institution of Mechanical Engineers will be held on Wednesday, the 28th inst., and Thursday, the 29th, at 25, Great George-street, at half-past seven each evening. The following papers will be read and discussed, as far as time permits: "On some Details in the Construction of Modern Lancashire Boilers," by Mr. Samuel Boswell (Wednesday); First Report to the Alloys Research Committee," by Prof. W. C. Roberts-Austen (Thursday).

The yield of iron ore in the United States is shown by a census return just issued to be 14,518,000 tons yearly. Michigan is, in this respect, the Cleveland of the United States, its output being just about equal to that of the North Yorkshire district in this country. But, despite this large production, there is a considerable import of ore, especially for the Pennsylvanian furnaces. Spain and Cuba supply the largest part of the imported ore, but Italy, England, and Greece contribute also.

CHIPS.

A large clock has been erected in the tower of the parish church, Sawston. The clock has been made throughout by Messrs. Potts and Sons, at their clock factory, Guildford-street, Leeds, and shows the time on two external dials 5ft. each.

The Durban Corporation have recently formally appointed Mr. W. H. Radford, C.E., of Nottingham, consulting engineer for the new sewerage of the borough, to act in conjunction with the resident borough engineer, Mr. John Fletcher, C.E.

The school board for Llandilo Talybont, have adopted plans for new schools at Gorseinon, prepared by Mr. J. B. Morgan, M.S.A., of Lanelly.

A new free library has been erected at Birmingham, and special attention has been paid to the ventilation, the latest improved form of Messrs. Robert Boyle and Son's patent self-acting air-pump ventilator being adopted for the extraction of the vitiated air.

An adjudication in bankruptcy has been made in the case of James Waterman, of St. Bene't-place, E.C., and Sutton, Surrey, timber merchant.

The work of laying down a new marble pavement in Peterborough Cathedral has been begun. The pavement of the choir will cost £2,000, which will be defrayed by Dean Argles. The design is being worked out in mosaic by a band of Italian workmen. The whole work will be completed by the end of next February. It is intended to erect a new reredos, which will be brought forward so as to restore the arrangement as it existed in the old Benedictine choir.

Probate duty has been paid on £27,787, as the net value of the personal estate of Mr. Keeley Halswelle, R.I., A.R.S.A., of Albemarle-street, Picadilly, and Stower House, Steep, Hants, landscape painter, who died at Paris on the 12th April last, aged 54 years.

At Tuesday's meeting of the London County Council a long discussion took place as to the correspondence between Captain Shaw and the Fire Brigade Committee, which has been published. It was charged against the committee that their unnecessary interference with their chief officer had led to his resignation; the committee denied that there had been any interference whatever. The announcement was made that the question of the appointment of a new chief officer would be considered this week, and that Captain Shaw's retiring allowance would be £966 13s. 4d., being the maximum pension of two-thirds of his salary. —Tenders were opened for the erection of a municipal lodging-house in Parker-street, Drury-lane. They varied in amount from £13,988 to £16,597. They were referred to the Housing of the Working Classes Committee.

The Storey Institute at Lancaster is to be opened by the Marquis of Hartington to-day (Friday). It has been built at the cost of Sir Thomas Storey, from plans by Messrs. Paley, Austin, and Paley, of Lancaster, and is Renaissance in style. It occupies the site of the old Mechanics' Institute and adjoining buildings, and has a frontage to Market-street of 43ft., and to Meeting House-lane of 160ft. Accommodation is provided for the School of Art and for technical schools.

A theatre is about to be built at the pier-head, Llandudno, from plans by Mr. Daniel Arkell, of Birmingham.

Shorland's patent warm air ventilating Manchester grates are being used in the new workhouse, Abergavenny, the same being supplied by Mr. E. H. Shorland, of Manchester.

The foundation-stone of the new R.C. church of St. Patrick was laid at Trim on Sunday week. The church will be Pointed Gothic in style, and will be 140ft. in length from east to west, and 70ft. wide across transepts. It will consist of a nave and aisles, chancel, transepts and sacristy, and nuns' choir. The tower and spire will rise to a height of 200ft. The walls are of limestone, with granite dressings. Mr. William Hague, Dawson-street, Dublin, is the architect, and Mr. Patrick Nolan, of Monaghan, has taken the contract at £16,000.

The citizens of York have this week decided, by a large majority, to adopt the provisions of the Free Libraries Acts. In 1881 and 1887 they had rejected a similar proposition.

Trade News.

WAGES MOVEMENTS.

The London Carpenters' Strike.—In accordance with the agreement to refer the questions in dispute between the master builders and carpenters to the arbitration of Mr. MacVicar Anderson, P.R.I.B.A., as announced by us last week, the men resumed work on Tuesday morning on the old terms pending the issue of the award. The arbitration was opened on Monday afternoon, at 9, Conduit-street, W., before Mr. Anderson, when there were present: for the employers—Messrs. Stanley G. Bird, J. Howard Colls, Frank May, G. H. Trollope, T. F. Rider, and J. Henshaw (secretary); and for the men: Messrs. J. G. Bowern (chairman United Trades Committee), W. Apperley (secretary), C. Matkin, J. J. Mackie, T. Abrey, A. Wilkinson, and G. Dew (secretary of the London Building Trades' Committee). At this meeting, which was held in private, it is understood the case for both parties, so far as related to the first two clauses of the memorial—those relating to working time and the minimum rate of wages—was placed before the arbitrator, who had before him the submission to arbitration, and also an agreement to abide by the award, signed by Mr. Stanley G. Bird and Mr. W. Apperley on behalf of the masters and the men respectively. The existing working rules agreed to in 1872-3, with the additional rule as to the two hours' notice and grinding-time to be given on discharge agreed to in May, 1887, were put in by Mr. Bowern, and accepted by Mr. Bird as binding. The arbitrator adjourned the court until yesterday (Thursday) afternoon at 2 p.m., when further evidence was given.—The United Trade Committee have issued an appeal to the organisations who have assisted them during the strike, asking for a continuation of support for a few weeks to enable the committee to pay the liabilities incurred, and to continue an allowance to men who have not yet found employment. This has been well responded to, and for some time to come the local branches will, of course, continue their contributions. The strike pay given on Saturday was 11s. per week for non-union men, and to union men 5s., the latter being increased to 20s. by the several societies. The United Trades Committee have spent about £30,000, which has been raised by a levy upon all the London men who have been in work of 3s. per head per week, besides subscriptions from most of the trade unions in the country. The Amalgamated Society of Carpenters and Joiners have also spent about £18,000, the Associated £250, the Perseverance £700, and the General £1,500. The Machinists have also supported their fellows, and have spent about £1,000, making a total of over £50,000, besides loss of wages. The strike has lasted for twenty-five weeks. During the great strike of 1872, which lasted fourteen weeks, about 2,000 men were affected, and they succeeded in getting a rise in wages with a reduction of hours, the amount of money expended being £7,277. The strike in 1859 lasted twenty-two weeks, and although the men were not successful in getting a rise in wages or a reduction of hours, they succeeded in getting the principle of trade combination recognised by the employers, who had threatened to dismiss every society man in their employ. The strike of Manchester carpenters, which lasted exactly a year (from May, 1877, to May, 1878), in which about 4,000 men were affected, ended in failure.

Carlisle.—An agreement was signed between the master builders and the masons of Carlisle, on Monday, settling the strike, which commenced a fortnight previously. The terms are a compromise. The men accept 8d. an hour, a reduction of ½d. (the masters had given notice of 1d. reduction), and the following arrangement as to hours:—January and December, 8 to 4.30, no breakfast half-hour; November, 7.15 to 4.45, breakfast half-hour; February, 7.15 to 5, breakfast half-hour; from 1st March to 1st June, 50 hours a week, from 6.30 to 5, and breakfast half-hour. It is also stipulated that if the trial of a 50-hours week from March to June be not satisfactory, the question be left to the arbitration of the mayor, whose decision shall be final and binding on all parties. The men resumed work on Tuesday.

On Sunday the Church of the Sacred Heart, Camberwell New-road, was reopened after enlargement, consisting of an addition of about 26ft. to the nave, a baptistery and organ-chamber, with a choir gallery and music-room, &c., new porches, and two towers with lofty turrets. The works have been in hand since April last, and have been much delayed by the strike of carpenters and joiners; even now the turrets are without their roofs, and chairs have to be used instead of the permanent seats. The architect is Mr. Fredk. A. Walters, of 4, Great Queen-street. The builders are Messrs. Thos. Gregory and Co., of Clapham Junction, S.W., and Mr. J. Newton foreman of works.

MEETINGS FOR THE ENSUING WE

Friday.—Architectural Association. "Pitfalls on mencing Practice," by W. H. Bi 7.30 p.m.

The Architectural Association, 9, Co street, W., and 56, Great Marlborough-street, W.

The Architectural Association Courses of Lecture Classes and Studio Instruction are now being carri The Courses are both elementary and advanced, a designed to provide a sound professional architec education, supplementary to that to be obtained prevailing system of pupilage. The Courses also as a means of preparation for the Intermediat Final Examinations of the Royal Institute of B Architects. The Course, which is divided into years, is progressive and consecutive, and the instru is given by Lecturers and Instructors of known abil

First Year.

LECTURES AND CLASSES.—The orders of Greek and Architecture, Building Materials, Geometry, Physics, Persp Mensuration, Chemistry, Geology.

THE STUDIO.—Drawings from ancient examples, Freehand ing, Drawing examples of Construction, Plane Geomet Perspective, Sketching and Measuring.

Second Year.

LECTURES AND CLASSES.—English Architecture, Pri of Construction, Strengths of Materials, Land Surveying, Ch of Building Materials, Elementary Ornament and Colour D tion.

THE STUDIO.—Designs based upon ancient examples, Fre Drawing, Drawings of Elementary Construction, Solid Geo Sketching and Measuring.

Third Year.

LECTURES AND CLASSES.—The History of Archit Materials, Stresses and Strains, Specifications and Quantity S ing, Ornament and Colour Decoration, Sanitary Science, Elem Natural Philosophy.

THE STUDIO.—Design of modern Buildings, Freehand D from Casts, Perspective and Sciography, Constructive Ma Modelling, Elementary Water-Colour Drawing.

Fourth Year.

LECTURES AND CLASSES.—The History of Archit Materials, Sanitary Science, Measurement and Valuation of ing Materials, Professional Practice, The Arts Allied to tecture.

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TENDERS.

*** Correspondents would in all cases oblige by gi the addresses of the parties tendering—at any rate, of accepted tender: it adds to the value of the informati

Blackpool.—For putting in the foundations of "Eiffel" Tower at Blackpool, for the Directors of Blackpool Tower Co. Messrs. Maxwell and Tuke, Manchester, architects:—

Neill, R., and Sons, Strangeways, Manchester (accept

IGHTON.—For a residence at Albrighton, for Mr. s Russell (exclusive of stabling and other out-. Messrs. J. R. Veall and Son, Wolverhampton, cts :—

ugh, H.	£2,325	0	0
illcock, H.	2,043	0	0
vatt, H. (accepted)	2,040	0	0
adney and Co.	2,027	6	0

All of Wolverhampton.

ROL.—For alterations and additions to Tannery, use-lane, Bedminster, for Messrs. John Cox and ccessors. Mr. Herbert J. Jones, M.S.A., archi-ristol :—

avan, A. J.	£2,250	0	0
itherly, E. T.	2,097	0	0
mphreys, G.	1,999	0	0
stabrook and Son	1,970	0	0
urch, W.	1,947	0	0
wlin, W., and Son	1,943	0	0
rrott, J.	1,940	0	0
ilkins, R., and Sons	1,885	0	0
ssiter, H. J.	1,800	0	0
ilkins, G. H. (accepted) ...	1,790	0	0

All of Bristol.

FF.—For alterations at the Workhouse, for the of guardians :—

owell, A. J. (accepted)	£33	4	4

HAM, S.W.—For heating apparatus, Park-crescent gational Chapel :—

ildbore, F. A....	£43	0	0
vis, H. and G.	27	10	0
eppard, C.	26	15	0
orn, T. (accepted)	20	19	6

STEAD.—For the erection of a pair of semi-detached es at Halstead, Kent, for Mr. Walton. Mr. St. Harris, architect and surveyor, 1, Basinghall-street, nd Orpington :—

van, E., Sevenoaks...	£470	0	0
night, T., Sidcup	469	0	0
ood, F., Chislehurst	458	0	0
ven, W., Farnborough	298	10	0

TON.—For alterations to factory roof, Hoxton, N. . Lovegrove, surveyor :—

oberts, L. and H.	£299	0	0
over and Son...	292	0	0
earing and Son	265	0	0

OF WIGHT.—For rebuilding a culvert at New for the Isle of Wight highway commissioners :—

ayles, G., Shanklin	£78	10	0
ker, Shanklin'...	70	0	0
rton, S. W., Ryde	58	10	0
rton Bros., Newport (accepted) ...	47	10	0

KENTISH TOWN.—For pulling down and rebuilding the Abbey Tavern, Kentish Town Road, N., for Mr. W. Cowling. Mr. J. T. Alexander, architect :—

Woodrow	£6 320	10	0
Mattock Bros.	6,255	0	0
Patman and Fotheringham ...	6,155	0	0
Rowe Bros.	5,980	0	0
Walker Bros....	5,970	0	0
Gould and Brand	5,831	0	0
Haires and Fagg	5,769	0	0
Edwards and Medway	5,644	0	0
S. R. Lamble	5,557	0	0

KINGSBRIDGE, DEVON.—For improving the road between Blackpool and Embridge, for the Kingsbridge highway board :—

Accepted tenders :—

Excavations :—

Penny, E, East Allington	£112	0	0

Carpentering :—

Tucker, of Burleston	£38	0	0

Masonry :—

Wills, of Steere	£27	18	0

LONDON.—For rebuilding No. 127, Lower Marsh, for Mr. Crane. Mr. W. M. Brutton, 171, Queen Victoria-street, E.C., architect :—

Scutt, R. C. (accepted)	£700	0	0

LONDON.—For pulling down and rebuilding No. 62, Farringdon-street, E.C., for Mrs. Homewood. Messrs. Romaine-Walker and Tanner, architects. Quantities supplied by Messrs. Pryce Cuxson and Leigh :—

Balaam Bros....	£1,600	0	0
Holloway Bros.	1,550	0	0
Scrivener and Co.	1,504	0	0
Nightingale, B. E.	1,493	0	0
Burman and Sons (accepted) ...	1,430	0	0

LONDON, N.—For the erection of pantechnicon warehouse and stables, Market-road, Caledonian-road, N., for Mr. John Southern. Mr. R. Owen Allsop, architect. Quantities supplied :—

	(A)			(B)		
Chant, E. J. ...	£1,657	0	0	£1,132	0	0
Lidstone, N. ...	1,610	0	0	1,201	0	0
Gould and Brand	1,596	0	0	1,149	0	0
Royal and Co. ...	1,585	0	0	1,093	0	0
Mattock Bros. ...	1,533	0	0	1,161	0	0
Bywaters, G. H. and A.	1,494	0	0*	1,043	0	0

(A) Whole building. (B) Without first-floor stables.
* Accepted.

LONDON, N.—For additions and alterations to No. 82, Upper-street, Islington, N., for Mr. Thomas Harrold. Mr. Edmund J. Harrison, 72, Chancery-lane, W.C., architect :—

Mattock Bros.	£851	1	2

[Revised estimate accepted. Six tenders received.]

LONDON.—For alterations to the Three Tuns, Blackheath, for Mr. G. T. Riddall. Mr. W. M. Brutton, architect :—

Bridle, H.	£735	0	0
Ford, G. W.	683	0	0
Simpson, W. L.	635	18	0
Ford, E. J.	628	0	0
Mead, J. (accepted)	609	0	0

ORPINGTON.—For the erection of a small detached house at Orpington, Kent, for Mr. Ashdown. Mr. St. Pierre Harris, architect and surveyor, 1, Basinghall-street, E.C., and Orpington :—

Knight, T., Sidcup	£619	0	0
Holt and Son, Croydon	590	0	0
Lowe, R. A., Chislehurst	549	0	0
Wood, F., Chislehurst	549	0	0
Somerford and Son, Orpington ...	537	0	0
Owen, W., Farnborough*	435	0	0

* Accepted with modifications.

PLUMSTEAD.—For alterations and repairs to shops, Nos. 15 and 16, Plumstead-road. Mr. Henry H. Church, Woolwich, architect :—

Hutton	£478	0	0
How	263	0	0
Coombs	256	0	0

RICHMOND, SURREY.—For supply of road materials :—

500 yards broken blue Guernsey granite, per cubic yard :—

Fennings, R. L. & J., London Bridge	£0	17	5
Manuelle, A. & F., Leadenhall-street	0	17	3
Mowlem, J., and Co., Westminster ...	0	17	2
Turner, Son, and Evanson, Chelsea ...	0	16	11
Downs, E., Richmond*	0	16	8

500 yards broken Pinlee stone, per cubic yard :—

Ross, C., and Son, Poplar	0	13	5
Runnalls, J., Penzance*	0	13	0

100 yards broken Pinlee stone siftings, per cubic yard :—

Runnalls, J., Penzance*	0	10	9

1,500 yards broken chalk flints, per cubic yard :—

Hall and Co., Croydon	0	5	10
Downs, E., Richmond*	0	4	0

* Accepted.

SOUTHAMPTON.—For providing and fixing iron cattle pens in the Cattle Market, for the Corporation. Mr. W. B. G. Bennett, borough surveyor :—

Sanby and Co. (accepted)	£52	5	6

[Borough surveyor's estimate, £65.]

TOLWORTH, SURBITON.—For the construction of a sewer in Douglas-road, Tolworth, for the National Land Corporation (Limited). Messrs. Pooley and Follett, 21, John-street, Adelphi, W.C., surveyors :—

Harris, E., Tolworth	£270	0	0
Nicholls, W., Wood Green	190	0	0
Kavanagh, S., Tolworth	175	11	0
Cunliffe, W., Kingston (accepted)	166	10	0

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WAKEFIELD.—For East Ardsley drainage, for Wakefield Union Rural Sanitary Authority. Mr. Frank Massie, Assoc.M.Inst.C.E., engineer :—

Contract No. 1.

Doleman, W., Dewsbury*	£1,297	9	0

Contract No. 2.

Wilson, G., Wakefield (accepted)	238	18	4

(*Accepted. Revised tender.)

WAKEFIELD.—For Shitlington waterworks, for Wakefield Union Rural Sanitary Authority. Mr. Frank Massie, Assoc.M.Inst.C.E., engineer :—

Contract No. 1.

Doleman, W., Dewsbury (accepted)	£272	19	5

WARWICK.—For decorating rooms in the Court House, for the town council :—

Holt and Co., Warwick (accepted) ..	£250	0	0
Plucknett and Co.	250	0	0

[Messrs. Plucknett will be paid five guineas as an honorarium for the preparation of a scheme.]

WEYMOUTH.—For painting the interior of the Guildhall, for the town council :—

Jesty, L.	£65	0	0
Ayles, R. A.	50	0	0
Rendall, R. A. (accepted)	49	15	0

WEYMOUTH.—For relaying wood paving on the bridge over the harbour, for the corporation :—

Bartlett, J. A. (accepted)	£29	0	0

(Lowest of five tenders received.)

WOLVERHAMPTON.—For villa at Penn, near Wolverhampton, for Mr. A. E. Price. Mr. Joseph Lavender, A.R.I.B.A., Wolverhampton, architect :—

Randall, J. A.	£783	0	0
Guest, B.	765	0	0
Bradney and Co.	700	0	0
Gough, H.	685	0	0
Cave, G. (accepted)	658	0	0

(All of Wolverhampton.)

WOOLWICH.—For the erection of three shops in Wellington-street, for Messrs. Lloyd and Son. Mr. Henry H. Church, Woolwich, architect. Quantities by Mr. Wm. Henry Strudwick :—

Coombs	£3,258	0	0
Allen and Sons	2,950	0	0
Multon and Wallis	2 840	0	0
Hart	2,649	0	0
Battley...	2,589	0	0
Holloway	2,587	0	0
Wallis and Sons	2,544	0	0
Chapman (accepted)	2,495	0	0

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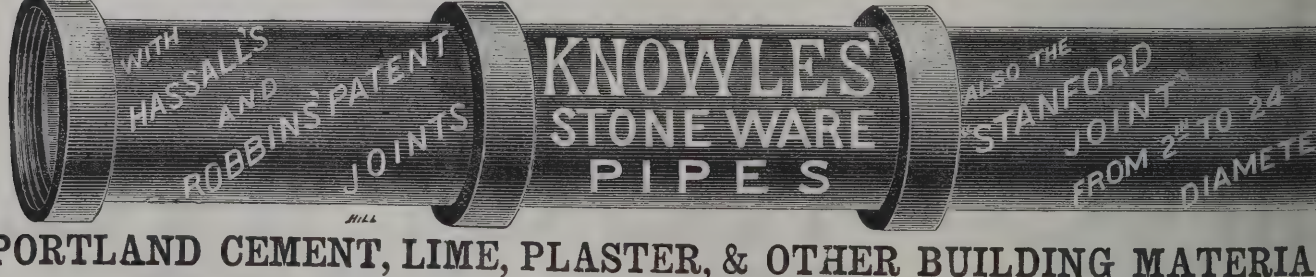
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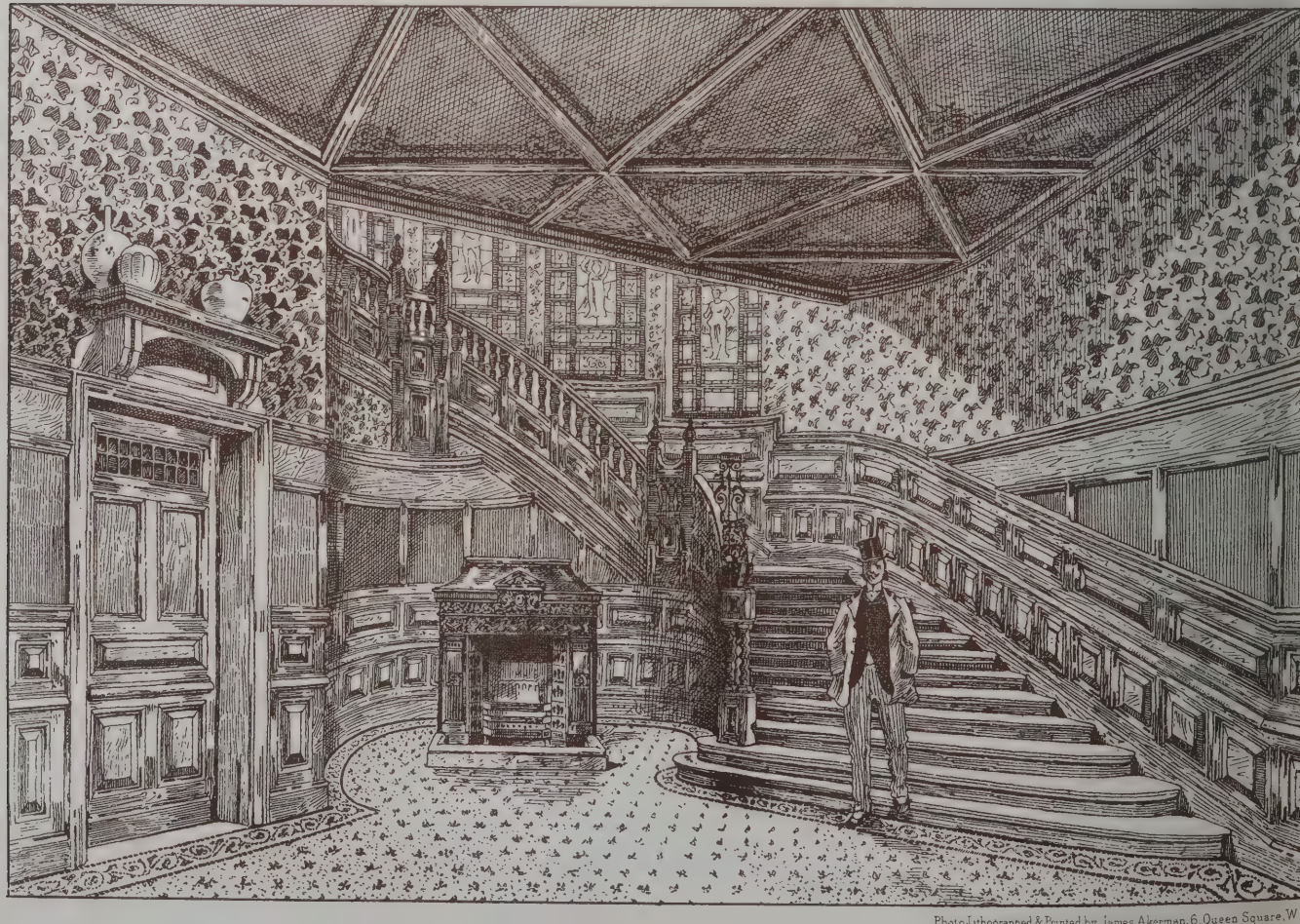


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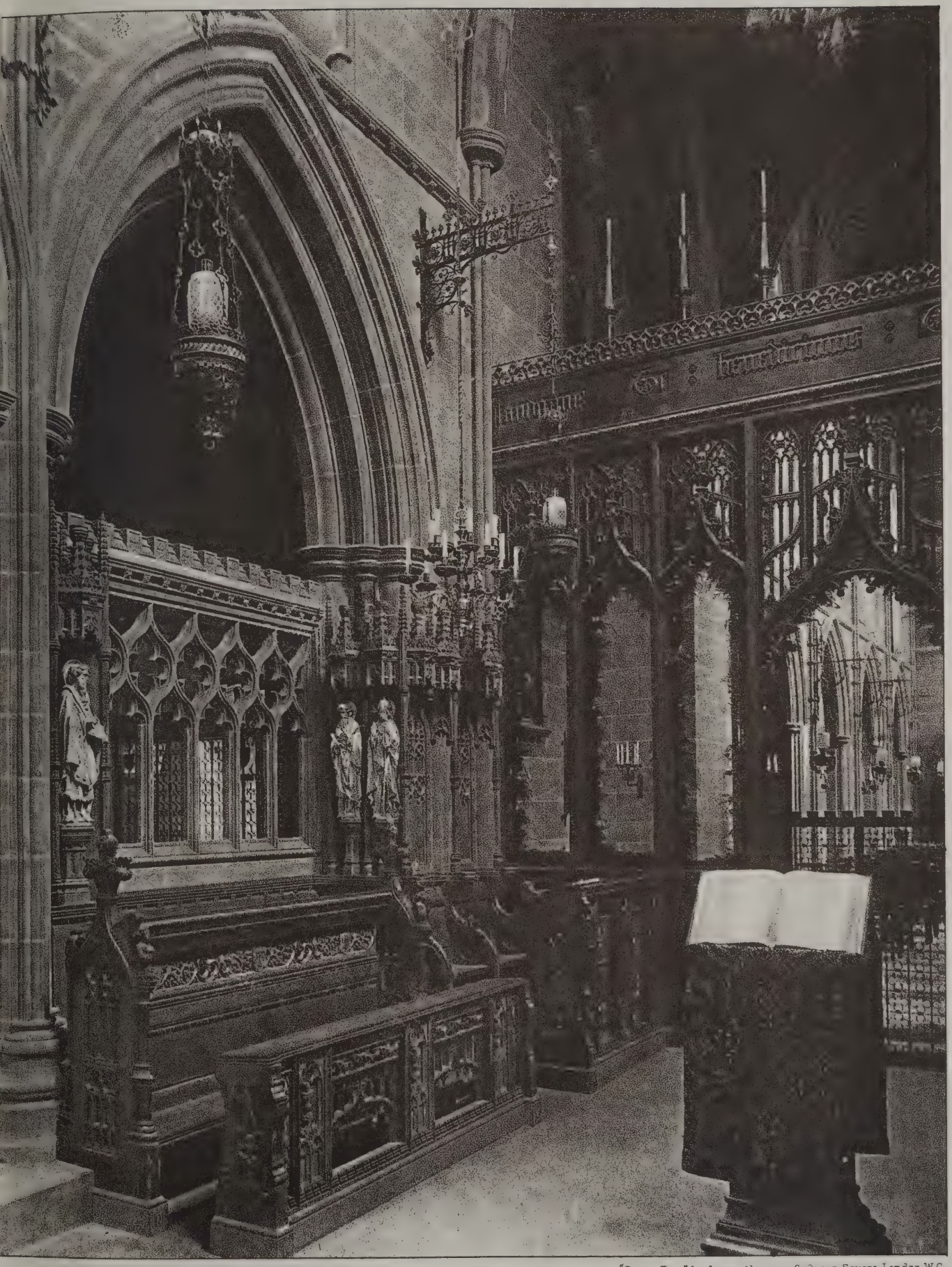


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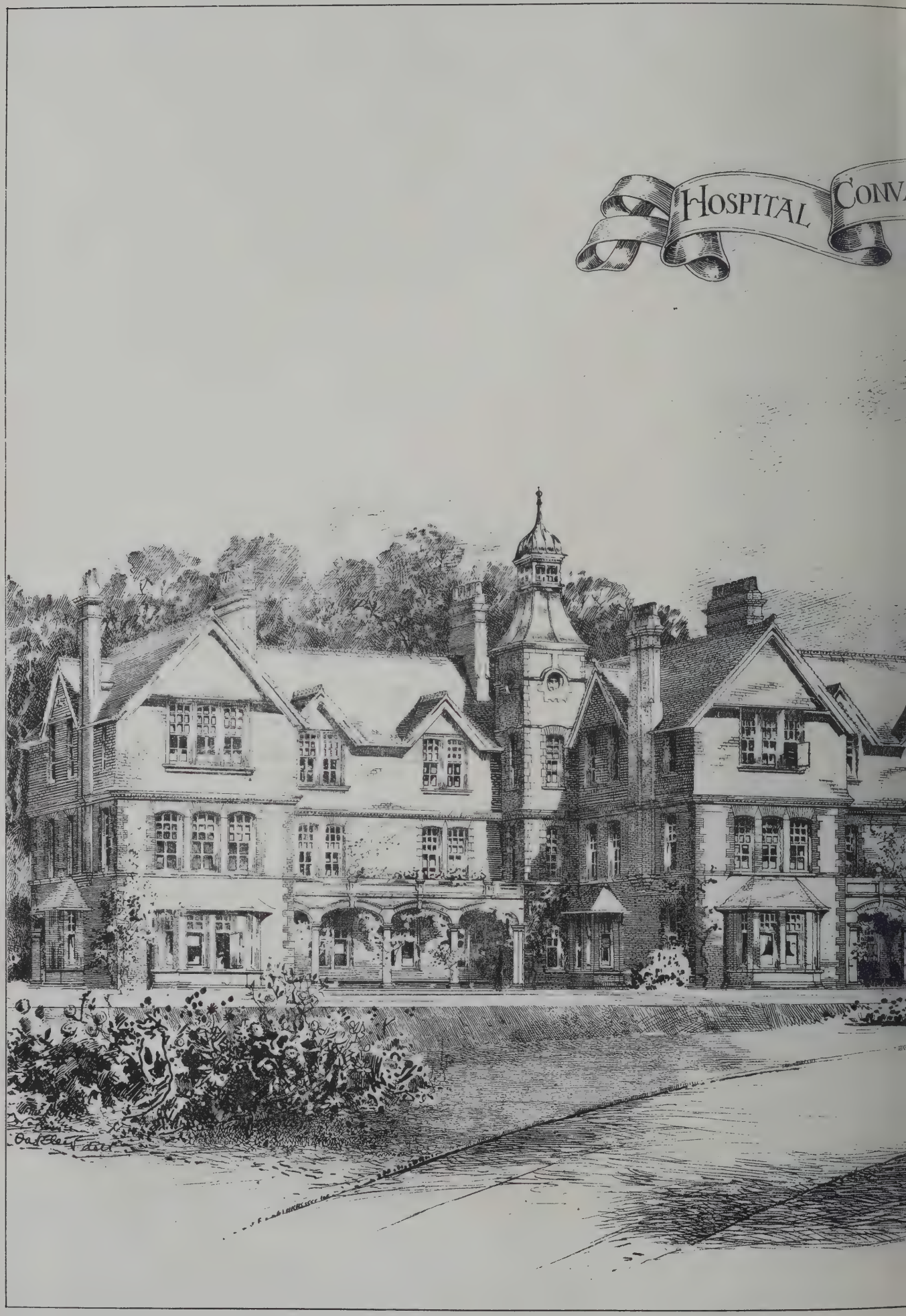


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NT HOME · PARKWOOD.



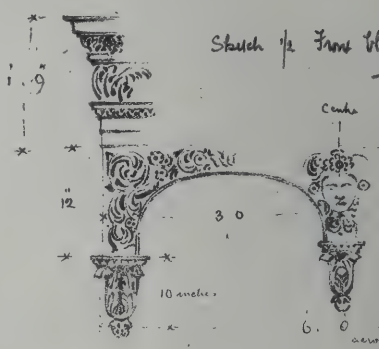
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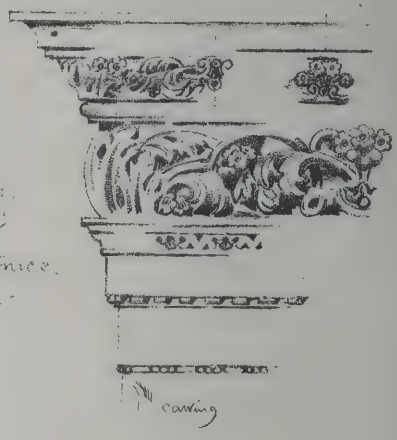
Photo-Lithographed & Printed by James Akerman, 6, Queen Square, W.C.

Details of English Woodwork - Early 18th Cent.

From South Kensington Museum

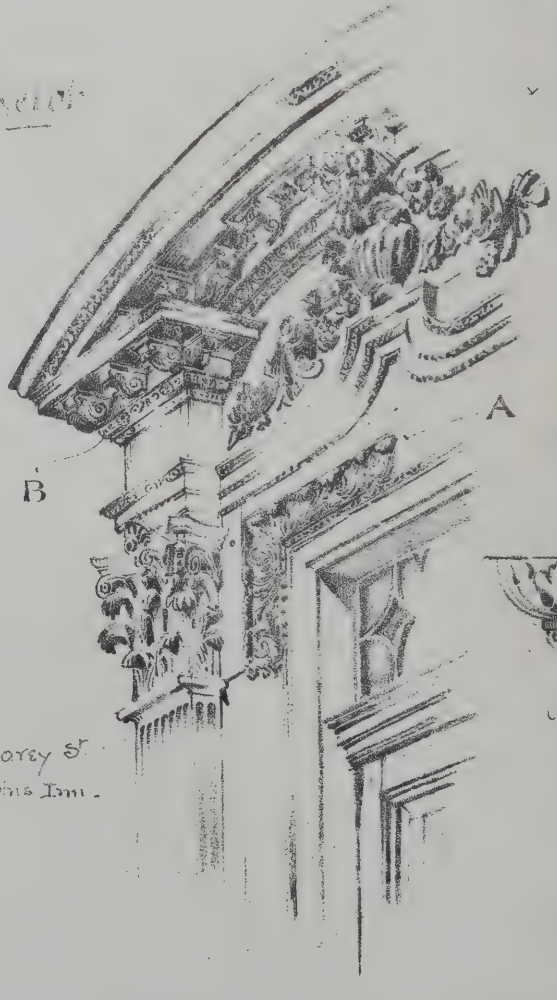




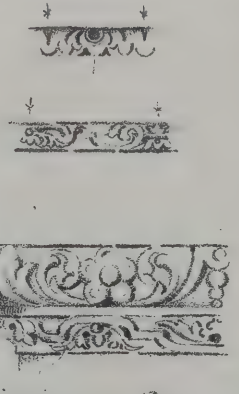




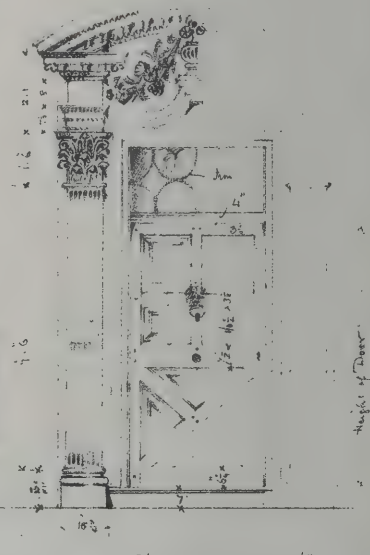
Detail of Carving about 1/2 Full Size at A



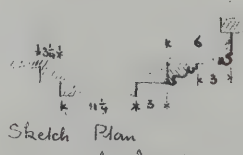
No 18 Carey St
Lincolns Inn.



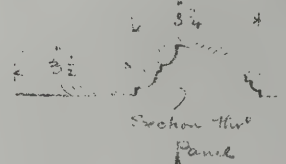
Carving at B



Elevation - 1" in = 1 foot

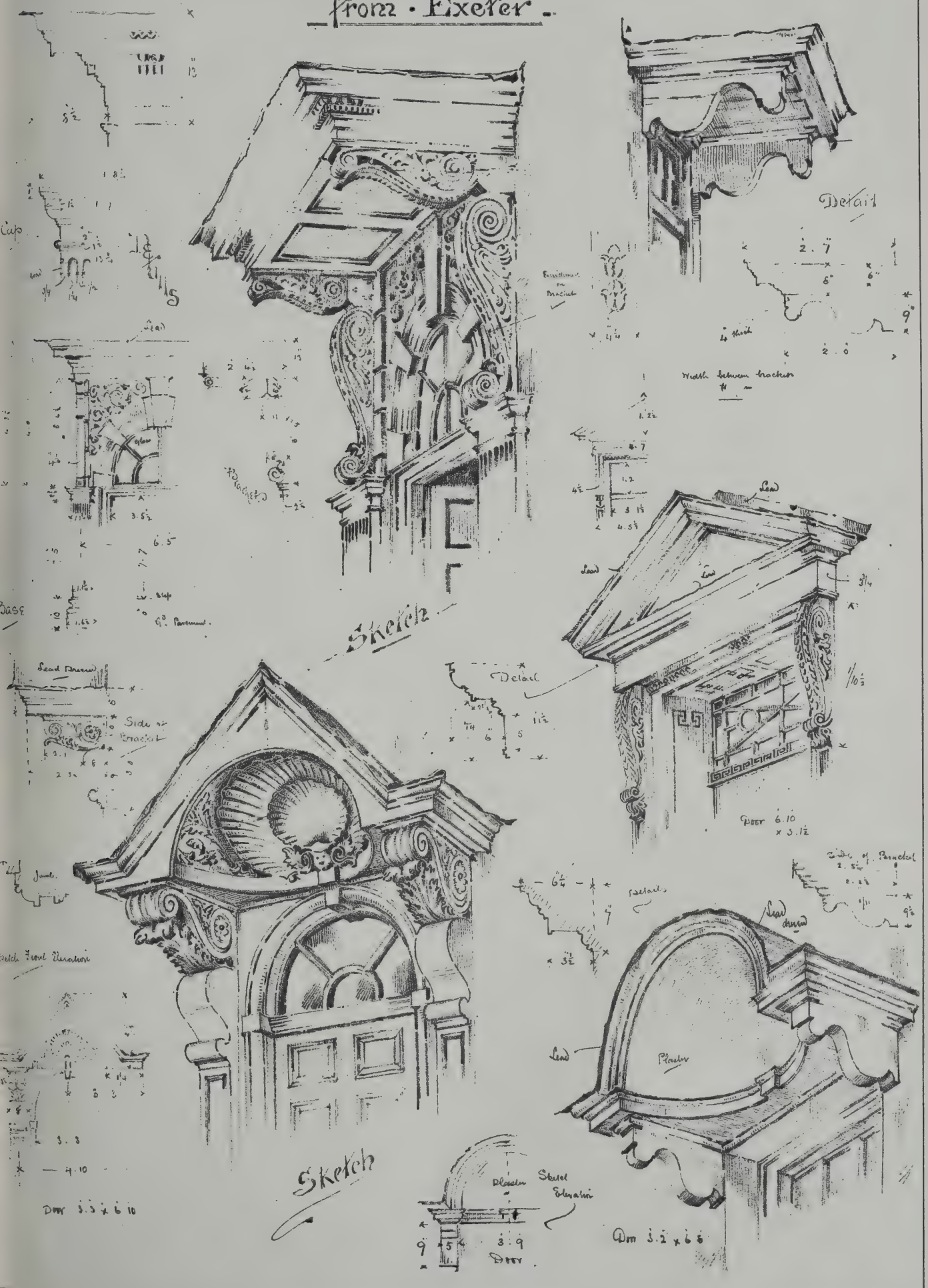


Sketch Plan of Joints.



Section thro' Panel

Some 18th Century Doorheads from Exeter



"PHOTO-TINT," by James Akerman, 6, Queen Square, London, W.C.

THE BUILDING NEWS
AND ENGINEERING JOURNAL.
VOL. LXI.—No. 1921.

FRIDAY, OCTOBER 30, 1891.

ARCHITECTS' PUPILS.

FACILITIES for the education and equipment of the architectural student in matters of professional practice are more numerous than they were a short time ago. The old apprenticeship, with its many shortcomings and its inevitable office routine, has no doubt failed in supplying competent men qual to the requirements of the day; but a few questions arise as to how the new system is to be made to co-operate with the old *régime*. It cannot be denied that the pupilage system is more or less of a business compact between the master and his pupil, one agreeing to instruct in the mystery and craft of the profession, and the other to render such assistance as he can give to his master. How this mutual understanding is to be carried out when outside educational schemes are in full operation is a question that concerns not only architects, but pupils. Under the scheme, for instance, of the Architectural Association, the student is required to attend at least three times a week for the evening lectures and classes and the studio courses, the hours of attendance in most cases being from 6.30 to 9.30. These attendances are reasonable enough; but it must be remembered that a student to profit by the classes and studio ought to be able to devote some of his time to private study and preparation. The earnest-minded and industrious pupil will not begrudge the time and study thus bestowed for preparing him for the examinations; but we are afraid a large number will look upon these extra hours to their daily labour as rather arduous and exacting. We know by experience the average class of young men who become pupils; they are not very prone to study or to occupy their hours after the office is closed by applying themselves to hard work. If it could have been arranged to hold the lectures and classes during the office hours of the pupil, he would doubtless have been more satisfied; but, on the other hand, the master would not readily agree to an arrangement which would deprive him of the services of his pupil. Here it must be admitted we have one of the hindrances to a supplemental scheme of instruction. Those who take pupils, as well as the pupils themselves and their guardians, will do well to consider this question in the future. The profession are morally pledged to render every assistance they can to their pupils, and it would not be too much to require that architects who take pupils should undertake to allow them an hour or two on certain days of the week, and undertake to inform the parents of their pupils before they receive them the responsibilities and duties imposed upon masters. But they are not of legal obligation. A statutory or compulsory scheme of instruction would have overcome this obstacle; for we cannot shut our eyes to the fact that voluntary organisations, however excellent they are, have no power to inculcate duties on those who are not parties to them. The profession can, however, by their appointed channels, do something towards obtaining the co-operation of masters, especially in the way of drawing attention to the importance of placing the educational requirements of students before parents and others. For instance, it will be doubly hard on the young apprentice if he discovers that his three or five years' term of pupilage might have been more profitably spent, or that his office training has not qualified him to pass any of the examinations. If his guardians had known, they would have made it a condition of apprenticeship that every facility should be given. We can well imagine cases of this sort. Many young men are articled to architects, understanding that architecture presents an easy means of obtaining a livelihood suitable for those who have a "taste for drawing," but no inclination for anything else—for a lazy, non-studious lad, to whom the other professions are inaccessible for more than one reason. To such, and there are still many of this kind of young men, the temptation to become architects is great; but it is time they were undeceived. Those who advertise for pupils do not take any trouble to inform parents; they rather hold out expectations of certain appointment, and in this way encourage the overstocking of the market with young men of this class. The premium is too often a bait. Men who have little to do take pupils to help them along. Others who wish to dispense with salaries take pupils. One question under the new educational system will have to be considered besides opportunities for joining classes and lecture courses—that is, expense. The old premium covered everything except board, when this had to be provided for; but now the pupil who expects to keep pace with other students will have to find extra fees to pay for his course of lectures. Many young men—at least, their parents—will have to defray the cost of these. To take, for instance, the fees of the Association, ten guineas for each year's course, or 40 guineas for the four years, added to the expense of board, will increase the cost of instruction. Architecture will thus become a more expensive study than it has been, and we may expect these costs will increase year by year as acquirements multiply. But a more efficient body of men will be the result. Instead of mere tyros, the profession will be recruited with young men who have gone through every branch of the art, who know how to design, make working drawings, and write specifications for any kind of building.

Mr. Baggallay's inaugural address before the Association, of which we gave a full report in our last issue, deals with a few points of interest to the younger members of the profession. The old apprenticeship is not so all sufficient, he says, in the latter half of the 19th century as it once was, and there is an urgent call for something in addition. The pupil must bear this in mind. He can no longer content himself with being able to set out any of the five Orders, or to be able to draw Greek temples of various columnar arrangements, which were at one time the Alpha and Omega, like the Greek and Latin of the universities. Modern science and applications to various purposes are absolutely necessary. Then as a qualification draughtsmanship occupies no longer the chief place in the modern curriculum. It is now recognised as a medium of expression; a means, not an end of itself, as it once was. Practical acquaintance with materials and construction in their various applications is now of as much value as the history of styles and artistic construction. But the apprenticeship system taught, and still teaches, only the preparation of plans and designs; hence the need of supplemental teaching, such as that afforded by classes and workshops.

The advantage to a student of advice and instruction is great. How many masters give the time and attention to the pupil he ought to have; give him reasons why certain arrangements and methods of construction are adopted, or take the trouble to explain the theory of any plan or detail? In the contemplated studio course, the value of advice will be equally necessary; in fact, the pupil working out, say, a set of drawings for a hospital or a school from data supplied in the lecture will have frequent need of guidance. As Mr. Baggallay said, students of architecture are poor readers; they read but little, and the books they do read are of the wrong kind. They are too apt to use their pencils for their brains; to take up an illustration or an example when they ought to be reading the laws of mechanical stresses, or treatises, statutes, and Blue Books. Very valuable papers read at the different societies, which give principles and practical results, often, we fear, go unread by the student, who ought to take every opportunity of reading what specialists have to say. Private study and reading are, unfortunately, not the inclinations of the average architect's pupil: he takes more interest in copying drawings and photographs, making sketches of old buildings and scrap-albums for young ladies.

A great weakness of the ordinary pupil's training in the office is that he is deprived of visiting buildings in progress; it falls to a salaried assistant or clerk to do this in the absence of the master. But why should not the indentures contain a proviso that the pupil is to be taken to see works in progress, or be permitted to visit them at certain times? An educational scheme to be perfect will have to make such a provision in the future. This has been a strong point in the Association, and in the new scheme of instruction will be made a part. Much has been learned by the visits to new buildings, and we think that those visits should, if possible, be made concurrent with the studio instruction. It is during the stage of making plans, sections, and detailed drawings that the young student needs the acquaintance of actual workmanship to be able to consult methods and details. By this examination he quickly learns how to make working drawings, how framed work and joinery or mason's work are fixed or set, and the dimensions of parts. One hour of inspection of actual work is worth days of labour on paper. In questions of brickwork and bond, the value of such reference is great. The addition of workshop practice to a curriculum is on the same ground very necessary—in fact, we can hardly understand how a student is to learn the trades without having the advantage of seeing the mechanical operations, such as those of sawing, planing, framing, and the modes of putting joiner's work together. Up to a certain point an architect should be trained as a craftsman. But all these matters are now reversed; he is taught first to be a professional man, and afterwards to become an expert in the arts of construction. Technical knowledge is learned last of all, being generally picked up by experience after many experiments have been made and mistakes committed. These are all questions which have a deep meaning for those who intend to enter the profession. It is quite time the profession as a body begin to realise the weak points of the present system of apprenticeship, and endeavour to make it obligatory on those who take pupils to promote their education, as their own credit and the prospects of their pupils will depend entirely on the opportunities they afford them. It is no longer a question of high premium or of being the pupil of an eminent man, but of qualification and ability.

THE ROYAL SOCIETY OF BRITISH ARTISTS.

THE Winter Exhibition of this Society in Suffolk-street, the private view of which took place last Saturday, contains a few characteristic works by members and others. Beginning with the north-west room, we meet with some well-known pencils. Jas. E. Grace's "Grey Day" (2), a small study, recalls the style and qualities of this inimitable painter of birch woodlands and

forests. A more important picture is No. 38, "Green Leaves among the Sere," a delightful landscape, with the delicate tints of early autumn. The figure of a girl, by John Cooke (6), in a dark blue dress, seated, her hands clasped on her lap, her hair lit up by the sun, is simple, natural, and quiet. The reflected light on the face and the dark background make an agreeable study. In another picture, "Is it Genuine?" (8), by Herbert J. Finn, an elderly man is asking a painter the value of a canvas which the latter is examining in his studio. The latter is full of artistic "properties," and the light and shade cleverly managed, but the composition is too crowded. A rather mannered landscape by Arch. Webb (10) is less important than other subjects by the same painter of Dutch scenery. R. W. A. Rouse has a large number of pictures. "Sunshine and Showers" (14) is full of atmosphere, the grey water and sky, and distant cliffs with the gleams of sunlight are truthfully depicted. "October Afternoon" and "Evening" (26 and 35) are pleasing studies, and Arnold Priestman's "Summer's Evening" (25) is exceptionally good in sentiment and colour. Three gentlemen in the picturesque garb of the 18th century, comparing different versions of some old work, compose a clever picture by W. D. Almond. Two of the bibliophiles sit at a small table discussing the merits or interpretation of a book, while the third companion leans intently over; the expressions of the critics are cleverly drawn, and the interior and accessories painted with knowledge of the period. The meadow and brook of E. W. Waite (23), "The Truant," is a sunny landscape bright in colour, though we can hardly understand the title applied to a youth fishing by the stream—quite a subsidiary object in the landscape.

John Cooke's shadowless landscape of hilly pastures (31), G. Sherwood Hunter's "Market Girls on the Zuyder Zee," and H. Maurice Page's large, silvery-toned landscape with a flock of sheep, "Homeward at Eve" (44) are works of certain qualities of expression and sentiment that call for notice. The two *virtuosi* examining a statuette, by John A. Lomax (44), is also of merit for its drawing, colour, and execution. In the same vein is Chas. E. Marshall's "Old Cronies" comfortably enjoying their pipes in an old, handsomely-furnished parlour, the host lighting his companion's pipe by a cinder applied by the tongs; the composition and details are admirable. We may admire the feeling treatment in Henry Zimmerman's "The Dying Day" (83), a hillside view, and F. H. A. Parker's "On the Road to Bettws-y-Coed." The cold, purple shadows in the road and landscape are a little out of focus with the conventional mode of shadowing; but they represent one of the soundest principles taught in the creed of the apostles of naturalistic painting, of which Mr. Parker is an admitted disciple.

The president, Mr. Wyke Bayliss, has, in the next room, given us one of his grand interiors—this time of Bourges Cathedral. The massive shafted piers and springing of vaults round the noble chevet, with the view of the lofty arches of the inner aisle have been selected by Mr. Bayliss, who gives thus a glimpse of the majestic beauty of the cathedral; the "dim religious light," the high altar in the chord of apse, a group of kneeling worshippers, and the falling shadows with the glimmering candles, add mystery to the scene. The glimpse of lofty shafts round the apse seen under the lower range of outer piers makes a delightful perspective, the drawing and colour of which are full of charm and poetry. A grand piece of colour and perspective is to be seen also in the view of the Duomo, Florence (207), representing the high altar, with its blaze of light and colour. In a lower key of colour, full of majesty and grey tones, in harmony with Cisalpine Gothic, is the president's interior of "Westminster Abbey" (321), in the larger room. The sedate and colourless procession of surpliced choir and clergy in the ambulatory are in keeping with the more Northern example. The drawing and perspective are both admirable, and the work is one of the finest we have seen.

Nelson Dawson's "Sundown," an expanse of blue sea (115), and G. G. Kilburne's "Gossip" (119) are clever. Perhaps one of the most pleasing bits of old-fashioned *genre*—a reminiscence of the last century—is L. C. Henley's "En Passant," a pretty girl in a high-waisted grey silk gown standing listlessly touching the keys of a pianoforte. Elegant and quiet in composition and colour, this is one of Mr. Henley's best. A humbler subject is Haynes King's "Local News" (132), two cottage maidens discussing gossip. Chas. H. Kerr's "Portrait of a Lady" (134), jauntily seated on a writing desk, with a cigarette in hand, is clever; and there is nice sunlight effect in E. H. A. Parker's "Skylark" (142). The water-colours on the screen comprise a few drawings by T. B. Hardy (158), J. S. Noble (167), a fresh piece of river scenery. We must note E. J. Patey's pastel portrait (175) of Miss Cusins, a lady artist; and Dudley Hardy's delightful "Breezy Day, Boulogne" (200), a strong piece of colour, fresh and full of fisher-folk.

In the large gallery we find a new arrangement—the mixture of water-colours with oil. We cannot object to a rule which enables both vehicles of expression to be honestly estimated as art, as the arbitrary distinction between these two classes is not in itself desirable, though we have no doubt that many water-colour painters will disapprove of a plan which places them at a disadvantage with those who paint in oil. Carlton Smith's "The End of the Day" (219) is excellent in composition and sentiment, and the scheme of light and shade good. W. H. J. Boot's "Winchelsea Church" and W. Ayerst Ingram's luminous seascape, "Surf," in oil colour, are notable. The fine architectural drawing of the president (234), "Cathedral, Aix-la-Chapelle," W. Harding Smith's "Church of S. Zeno Maggiore, Verona" (235), and especially his "Canterbury Cathedral from the Baptistery Garden" (415) possess qualities of much merit. Mr. Harding Smith, we need hardly say, has lost nothing of his masterly touch and technical power. The water-colour drawing of the tower of Canterbury is charming in grouping truthfulness. The point of view chosen brings into pleasing sequence the adjoining buildings with their Norman detail. Delightful colour and drawing appear also in Ernest George's small views of the "Doorway and Chapel of St. Andrew's College (259 and 273). Albert Kinsley's large water-colour picture of "The Year's Decline" (244), exhibits breadth and conscientious workmanship in the birchwood and mass of tangled fern, and some delicate handling is to be found in his "Early Spring-Time" (248). H. C. Fox sends two clever subjects (245 and 246). Over the fireplace, R. B. Nisbet's small landscapes "In Perthshire" and "A Moorland" (263 and 269), deserve attention. A vigorous seascape, "Breaking Waves," by Chas. S. Mottram, and works by A. Glendenning, A. W. Weedon (291), and V. P. Yglesias (288) are examples of meritorious treatment. "Old Cronies" (283), by W. J. Morgan, three elderly villagers seated at an inn-table smoking, is a large picture, well grouped, with pleasant faces; but there is a lack of naturalness in the handling. Nice tone and feeling are evident in Val. Davis's "Withered Leaves" (316) and Adam E. Proctor's landscape (324). A clever harbour sketch, "Home Again," is by Nelson Dawson (328). A large oil picture by F. Cayley Robinson (343), "The Ferry," has a touch of the romantic school, strongly pre-Raphaelite in treatment of the aquat plants and lilies which border the river half-screened by the stalks of the latter, gondola, with a swain and his sweethear glides by. The colour is rather in a lo key, which the white canvas frame intensi fies. Leopold Rivers's "Village Street (338) is picturesque and quiet in sent ment; and we notice clever studies b Stuart Lloyd (348) and J. L. Pickering (352 Edwin Ellis's large and powerful seascap "The Kingdoms of the Sun" (363) is in oi Mr. Ellis has this time abandoned headland and coasts, and given us a wide expanse sea, strong and deep in its blue-reflectin mass of white clouds, traversed by a darke one. Imagination may see in these luminou masses of vapour the forms of angels, an the darker cloud that of a dragon; but th motive was to portray the solitary grandeu of sky and sea. The title is indeed a imposing one, and the painter has ver cleverly depicted the effects of bright light the sun's rays pierce the luminous cloud and are reflected in the blue sea. Th shadows of the cumuli are well painte and the whole is a masterly conception light and colour. "Amries Garden," b A. Birkenruth, is a subtle piece of impres sionism, the girl in white among the lilie is prettily conceived. Frederick Jackson "Launch of the Lifeboat" is a fine study coast life; movement in the group and th colour are admirable. Nice colour, too, i seen in Harry Van der Weyden's "Conwa River," in A. Kinsley's "Late Autumn, and dramatic power is shown in W. A Pike's "Too Late," a lady arrived to see onl the death of her lover, who has just fallen i a duel. The group of figures are clever i drawing, but the distant figures look a littl out of scale. In the other rooms, we notic a strong piece of colour in Flora M. Reid' "Step by Step;" a clever, small study b W. H. Pike, "Hunted Down" (486). E. M Bakewell has an interior of St. Augustine' Kent (515); G. Holmes a vigorous land scape in the New Forest (518); Bertra Priestman a touching incident, delicate i colour and drawing, "Parted"; and we ca also mention with approval, Davidso Knowles' "Fading Day" (576), and som works by R. W. A. Rouse; and a weir subject, "La Sorcière—Brittany," by G Sherwood Hunter. Mr. Charles Marsha (28) sends a clever study of the head an shoulders of a woman, well modelled an painted. One thing to notice in this rathe unequal collection are the large number white picture-frames and glazed oil-picture a craze which might be carried easily to a excess. Mr. Ellis's great landscape, fo example, has a wide, plain frame of ston colour, with a gilt margin inside. Th contrast is not ill-judged.

NONCONFORMIST CHURCH BUILDING.*

By James Cubitt.

CHAPTER III. (*continued*).

3. Architectural Style.

BY those who are neither architec nor architectural students, the wo "style" is often misunderstood. If, f instance, they see a church with a nav and aisles, they say it is "in a differe style" from an aisleless one or a poly gonal one, and if they see a tow finished with battlements and a flat roo they suppose it must necessarily be in different style from one which is crowned b a spire. It is quite possible, however, every tyro knows, for all these, and a mult tude of equally diverse designs to be carri out in one and the same style: just as it possible for the same design to be successive

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lated into a great variety of styles. e same melody may be transposed into keys, and many very different tunes be played in one and the same key.

le, therefore, is quite a different thing design. Design is the essential under- idea of a building, which settles its form, composition, and grouping. Style rather with the subordinate details. gn is the thought; style is merely the iage in which that thought happens to pressed. Or, otherwise, design is the and style the clothing. Design is, fore, a more vital and essential thing style, and if the design of a building be the particular style adopted is a matter condary, though still of considerable, rtance.

this is universally recognised now. A ation ago it was otherwise; style was studied to the exclusion of all beside. -called "battle of the styles" was g, and the Greek style, the Italian the Romanesque style, the Early c, Middle Gothic, Late Gothic, and issance styles all had their champions. has shown that very good buildings, ery bad buildings, can be produced in ese styles, and in many more. The tle of the styles" has, therefore, prac- y ceased, and the question now is not uch "What style does an architect ?" as "What does he make of it?"

is not well, then, for those who con- ate the erection of a church, to pick me particular style, and to make it a tion that designs shall be in that style, no other. Yet in choosing between in different styles, it is worth while to in mind that, with equally substantial onest materials, some styles will be more economical than others. With roviso, the Roman style, with its por- and pilasters and its immense cornices, prove more costly than most of the eval or Renaissance ones; and from ause it has happened that where the n style has been insisted on for Non- mist churches, it has rarely got beyond ody in stucco. The English variety manesque, again (commonly known as an), needs great massiveness to bring s true character, and this massiveness h inconvenient and expensive. This k, however, does not apply to the r and more refined types of Roman- which are found on the Continent, and have many points of value for modern ses.

se varieties of Gothic, again, which a very lofty, vertical, and aspiring ter do not adapt themselves well to ied churches, in which the windows he columns are usually short, and hich a horizontal tendency is the l result of the conditions. The earliest or "Transitional" Gothic, its nearly round arches, and the Gothic, with its flat, four-centred are much more accommodating in espect, and so are also the refined ies of Romanesque above referred to. rick buildings, there is much to from the Late Gothic and Renaissance architecture of Holland and Belgium, t less, perhaps, from that of Norfolk, , and Essex.

course, whatever style is adopted, it be followed consistently. The reason is not reverence for precedent, but to harmony. Though we can scarcely oo much originality, it should never originality of ignorance, and only who have a thorough knowledge of a re likely to succeed in adding fresh s to it, when they venture beyond its g limits.

ly, it is to be remembered that styles of fashion, and ornaments go out of ; but that good proportion and beauty eral form never go out of fashion. Imagine all the decorative details of an architectural work removed: if it was really admirable, there will still remain a beautiful design; but if it was commonplace and weak, there will only remain a shapeless mass of haphazard building. Hidden under the finery that happens for the time to be in vogue, this shapelessness may pass unnoticed for a while. But some day people will be tired of that particular sort of finery, and then they will only see the formlessness of the building, aggravated by its unfashionableness. It is not so with the works whose pervading idea is a fine one. These will take their place with all that is really excellent, and, after being in fashion, and out of fashion, they end at last, like the masterpieces of art, by being permanently set above fashion.

4. ACOUSTICS.

The theory of sound has been pretty well worked out; but the difficulty lies in applying it to the endlessly varying sizes, shapes, materials, and details of different buildings. It is not so much that the principles of acoustics are unknown, as that the working out of their results in any but the very simplest cases forms too complicated a problem for practical solution. Some writers on the subject, though not usually the scientific ones, profess great faith in strict numerical relations between the length, width, and height of an interior. They would have us believe, for instance, that if a building is 80ft. long, 60ft. wide, and 40ft. high (or if its length, width, and height are other multiples of 4, 3, and 2), it is sure to be successful for speaking in. Practice, as might be foreseen, does not support this fancy, and in the case supposed everything would really depend on the materials, and on the treatment of the internal surfaces. Moreover, the taking away of 2ft. or 3ft. either from length or width of such a building, which on this supposition ought to destroy its acoustic merits altogether, is, in fact, more likely to improve them. And, again, the principle, such as it is, becomes unworkable when one has to apply it to any but a plain, oblong room with a flat ceiling, a room which, of all places, is apt to be the worst for speaking in. What, for instance, are we to consider the length, and what the width, of such a plan as A or K or L, and at what points must they be measured? Yet such plans as these are incomparably better, as regards acoustics, than the plain oblong which the hypothesis presupposes.

But, on the other hand, a building which is to be successful for speaking in must have all its dimensions within certain *general* limits, regulated by the distance to which an average voice can be distinctly heard. Sir Christopher Wren considered this distance to be at least 50ft. in front of the speaker, 20ft. behind him, and 30ft. on each side. This is doubtless, as regards the length, a very moderate estimate, and might fairly be increased by 20ft. or more. At the Metropolitan Tabernacle, Newington, which is 80ft. wide from wall to wall, and 150ft. in extreme length, internally, an exceptionally good voice is audible throughout. In this case there is, in the upper part of the building, a length of nearly 120ft. in front of the speaker. On the ground floor and lower gallery, however, the extreme distance from him is only about 100ft.

In buildings of a length like this, the chief difficulty is to conduct the sound to the further end, and by all practicable means to prevent its being lost and deadened. For this purpose, wooden linings to the walls have been employed, and a ceiling semicircular in section. Echoes have also to be carefully guarded against, especially from the end facing the speaker. But, in places of a smaller size, and of moderate height, means for conducting sound are not required, and echo and reverberation are the real dangers to be feared. In an interior where the furthest seat is not more than 60ft. or 70ft. from the minister, everybody may be considered within direct range of his voice. Wooden wall-linings would do more harm than good, but careful study is needed to prevent the voice from being reflected back.

Echo, and reverberation, which is only an echo, or series of echoes, within too small a compass to be clearly heard as such, come mainly from even and unbroken surfaces. The surfaces may belong to either walls, roofs, or floors. Echoes from a floor, which are very common, are much lessened by chairs or pews, and destroyed by the presence of a full congregation, and by the use of carpets, cushions, &c. These, therefore, are comparatively harmless. The troublesome echoes are those from walls, and roofs or ceilings.

A flat, unbroken end-wall, facing the pulpit, is pretty sure to reflect sound unpleasantly. This fact is so well known that an end gallery is often put in, less for its utility than with a view of preventing this evil. Any scheme, however, which will break the wall surface up into projections and recesses will answer the same purpose, and perhaps in a more architectural way. The corners of an oblong building, too, are great lurking-places for echoes, particularly if the building is destitute of columns. For this reason, corners of this sort are sometimes cut off obliquely, and at other times are broken up with projecting piers, which will have the same effect in a different way. The sides of deep transepts, again, facing the speaker, are likely to act as a flat end-wall does if proper precautions are not taken. And if, as occasionally happens, the building narrows, even a very little, from one end to the other, or, in other words, is slightly wedge-shaped, there will be much danger of reverberation from the side walls, if the pulpit is put at the wider end. With a pulpit at the narrower end, wedge-shaped buildings have the reputation of being acoustically good.

A curved wall facing the speaker is commonly as bad as, or worse than, a flat one, provided, of course, that it is not effectually broken up by projections or recesses; and the same thing may be said of a polygonal one. It has been assumed, so far, that the building is without columns. For though columns when ill-placed cause much obstruction to sight, they do make considerable atonement for this fault by breaking up and doing away with echoes. Moreover, it is quite possible to get the good from them without the evil, although, on the other hand, with unskilful treatment, it may happen that the evil remains without the good. The same principles that apply to walls apply to roofs and ceilings. All planes that face the speaker should be thoroughly broken up, and no flat or concave surfaces should be allowed in this position. The right angle between a wall and a flat ceiling is usually as bad for sound as the right angle between two walls, and should be got rid of in analogous way. An angle at the ridge of a roof also leads to confused echoes, unless the pitch of the roof or ceiling be extremely low. Very obtuse angles are not objectionable. Anything like a large internal dome should be greatly broken up by ribs, coffers, or similar features, or it will be likely to reflect the voice like a concave mirror. And internal roofs or ceilings should not be too high. A lofty space behind the pulpit is particularly bad, unless it has an open or closed screen across it, or is occupied by an organ.

REMOVAL OF SNOW FROM TOWN STREETS.

SNOW as it lies when fallen measures, according to the state of the atmosphere at the time, from 12 to 8 times the depth of

water into which it melts. In very dry states of the atmosphere it measures even more than 12 times its depth of water. But by the time it is removed it has generally become compressed, either by its own settlement or by traffic over it, and in this condition it may be more properly taken at 8 times its depth of water. A cubic foot of water being 62½lb. weight; a cubic foot of snow at the time of removal is thus 7·8, or say 8lb.

It has been the usual practice to remove snow from the streets of towns by carting it away, at great expense, or to let it lie upon the streets, other than the main streets of traffic, to the great inconvenience of the inhabitants. But there is usually a great outcry and complaint against the streets authority when they venture to let the snow lie in any street while they remove it from another, and they are often at their wits' end, as it is said, to know what to do or which way to turn to satisfy everybody. Snow is sure to fall every year, and it is usually as frequent as it is certain, every winter, yet when it comes it puts the street authorities into commotion. They have horses and carts to look up and men to employ in unusual numbers all at once, and the expense of clearing the streets has been frequently enormous. A better way, if it were possible, would be to melt the snow *in situ*. The following are but a few instances of the many which have occurred. On one occasion there fell a depth of snow estimated at 12in. in general depth over the one square mile of the city of London, the area of the carriageways being 468,950 square yards, and of footways 328,608 square yards—together 797,558. The streets, courts, and alleys of the city measured at the same time 46 miles. To clear the snow from this area there were employed, in addition to nearly 80 carts belonging to the Commissioners of Sewers, about 300 extra carts and horses and 600 men, over and above the ordinary staff of scavengers and street-cleaners, numbering between 300 and 400 men and boys. The snow, so far as it was tolerably clean and free from the refuse underlying it, was carted to Blackfriars Bridge, and there thrown into the Thames. The remainder was carted to vacant ground to which the Corporation had access. The late chairman of the Metropolitan Board of Works stated that on the 117 square miles of the metropolitan area there fell, in one storm, 8¾ million tons of snow. Somebody else estimated the weight at 7½ million tons, taking the depth at 12in., and the corresponding depth of water at 1in.

In the parish of St. George, Hanover-square, there were from 250 to 300 men working night and day with snow plough, removing 1,800 loads, equal 4,500 cubic yards daily. One great difficulty was the absence of places conveniently situated for its disposal, the whole having been carted to the Thames, at an expense of nearly £1,000. The area of the streets only from which the snow was removed was more than a million square yards. Including the roofs of houses the quantity of snow removed was at least 400,000 cubic yards. To remove this in ten days 4,000 horses and carts, it was said, would be required each day, and would cost at least £35,000, or an extra rate of 6d. in the pound. A fall of snow at Leeds, removed by carting it away, took three days and nights continuous work, not only of the regular staff of 150 men and 40 horses and carts, but 150 extra men with 20 additional horses and carts, were at once set on. These continued all day and were relieved at night by 168 men and 50 horses and carts, continuing all night. The next day 200 extra men were employed, with 100 horses and carts. It took 150 men and 50 horses and carts 8 hours to clear Briggate alone, an area of 11,000 square yards. One of the difficulties here also was to find places where the carts could be emptied. The snow was mostly carted to the river. The report of Colonel Haywood to the City of London Commissioners of sewers in 1881 was that one fall of snow was 8in. to 9in. in depth, and that before compression there were 500,000 cubic yards on the entire area of the City, of which about 133,000 cubic yards fell upon the public ways. The 350 men and boys employed by the Commissioners began work on the snow at its commencement, and 233 extra hands were taken on during the day. During the night the men rested; but on the second day a total number of 1,287 men and boys, and 288 horses and carts were employed. The work was carried on night and day for eight or nine days.

The average number employed was 1,429 hands, 502 horses, 490 carts. The extra hands were nearly all adults, and were engaged for six hours and then paid off, that being the amount of continuous labour that could be done in the snow. The rate of pay was 6d. per hour for the first seven days, and afterwards 4d. per hour. The greater part of the snow was carted to London Bridge and Blackfriars Bridge, and thrown over the parapet into the river. Attempts were made to melt the snow by sprinkling upon it rock salt, but failed, owing to the severity of the frost.

On the occasion of a previous fall of snow, experiments were made in melting by steam. For this purpose, the boiler of a 10H.P. portable engine was taken to a piece of vacant ground near the Holborn Viaduct. A wooden trough was provided, and placed near the engine. It was 7ft. 4in. long, 2ft. wide, and 2ft. deep. At the bottom of the trough was a hole for the escape of water. Six inches above the bottom of the trough were four lines of 1¼in. pipes, connected by a transverse pipe with the boiler. The pipes in the box were perforated with holes 1¼in. diameter, 1½in. apart. The experiments extended over five days, which included getting up steam. The mean pressure in the boiler was 45lb. per square inch. Snow was brought in carts and shot down near the engine, filled into a measure of 1 cubic yard, and thrown into the trough. It took three men to keep the trough constantly full of snow. The quantity melted in five days was 204 cubic yards. As the snow was thrown into carts from the streets, and further compressed by filling into the measuring boxes, each cubic yard experimented upon was probably equal to 3 or 4 cubic yards measured on the ground after the fall.

After the first day, the snow became mixed with street refuse, and, at times, the steam had to be shut off while the bottom of the trough was cleared of the mud. The total cost per day for the five days was:—

	£	s.	d.
Hire of engine, including attendance and fuel	1	15	0
Three men filling, at 4s.	0	12	0
Cost of water	0	10	8
	£2	17	8

which is at the rate of 1s. 5d. per cubic yard.

This does not include the cost of filling the carts and bringing the snow to the spot, nor the three men measuring the snow, nor the cost of bringing or removing the engine. If the cost of these were added it would be 1s. 7d. per cubic yard, and if the pay of the three men measuring be added, it would be 1s. 10½d. per cubic yard. There were defects in the construction of the trough; but in any case the cost of melting the snow by steam in this manner would not be less than 1s. 3d. or 1s. 4d. per cubic yard.

A gas apparatus was tried, consisting of a series of gas-burners, by which coal-gas is largely mixed with air and then consumed, the burners being covered with a series of corrugated-iron plates with iron flues, which distribute the heat in the chamber in which the apparatus is fixed. The apparatus was placed in the manhole chamber of the entrance to the sewer in Fore-street, a corner of New Basinghall-street. The was generally of the same character as melted by steam, but perhaps more pressed, and probably more dirt with i was not in this case placed in mea before melting; but the number of loads brought to the side entrance o sewer was counted. The quantity mel 32 hours was 285 cubic yards, or 89 yards per day of 10 hours. It took men to keep the side entrance of the sufficiently charged with snow to utili full power of the apparatus. The ga sumed in 32 hours amounted to 20,7 The price was 3s. 9d. per 1,000ft.; but the gasworks of a town belong—as th in many towns—to the municipal auth it would not be charged at more th cost price, say 2s. per 1,000ft. At th the cost of gas would be £2 1s. 6d. labourers at 5d. per hour, £2 13s. 2 gether £4 14s. 8d., or at the rate of 4 cubic yard of snow melted. But t must be added a proportion of the fir of the apparatus and the alteration side entrances of sewers for its adap The apparatus would cost about £3 the adaptation of each side entranc Each season, also, the apparatus be removed and stored, and perhaps re and taking all contingencies into ac the cost of melting snow in the comp state in which it would be brought melting place, would be 6d. or 7d. pe yard.

Falls of snow 2in. or 3in. in depth materially inconvenience the road traf beyond 3in. it becomes a hindrance. of 4in. deep, measured as it lies, wou for the entire public way of the London about 77,697 cubic yards, o about 36,365 would be upon the ma of street.

A fall of 6in. deep gives about cubic yards, of which about 54,548 w upon the main lines of street. If yards, measured as it lies, are carte as 1 cubic yard, a fall of 4in. wou 12,122 cubic yards for the main stre 25,899 for the whole city; and a fal would give 18,182 cubic yards for th lines of street, and 38,848 for the who These quantities do not include th thrown on to the public ways from t of houses.

THE SYMBOLISM AND I GRAPHY OF EARLY AND ÆVAL CHRISTIAN ART.—X

By George Ashdown Audsley, F.R.

(Author of "Handbook of Christian Syn and several works on Architecture and

Third Subject.

Text.—"And God said, Let there be ment in the midst of the waters, and le the waters from the waters. And God firmament, and divided the waters wh under the firmament from the waters w above the firmament: and it was so. called the firmament Heaven. And the ev the morning were the second day."

THE artist of the mosaics at Mon treated this subject with con force, and in the very simplest manner He represents the Creator, seated circular orb or disc, moving as it w the waters, and with His right hand forth, apparently in the act of raisi thing up or moving something—th dividing "the waters which were u firmament from the waters wh above the firmament." The firm represented by the lower half of a ring, within which is shown a mass divided from the water beneath on Creator is apparently moving. centric circles of blue tints within t circular feature are intended, in t

lic methods of the Middle Ages, to
s heaven.
artist of the series in St. Mark's, at
, appears to have experienced some
xity over the events of the Second
and has devoted two pictures to them.
e first he has depicted the youthful
r, bearing a sceptre, and accompanied
o angels; before Him is a dark globe
midst of waters. This evidently is a
ring of the words, "Let there be a
nent in the midst of the waters."



Fig. 54.

e second subject the Creator is separ-
the waters. The dark globe appears
e side, whilst the waters, on the other
are divided by a piece of land which is
form of a cross. This is by no means
ccessful a rendering as that at Monreale.
might reasonably be expected, the
s of the Second Day of the Creation
never favourite subjects with the
eval artists. Art failed in representing
the mind could not comprehend. All
ould be done was to depict two masses
ater divided or separated in some
er; the figure of the Creator appearing
commanding their division. Art, how-
aided by imagination, could go no
er here.

Fourth Subject.

T.—"And God said, Let the waters under
eaven be gathered together unto one place,
t the dry *land* appear: and it was so. And
alled the dry *land* Earth; and the gathering
er of the waters called he Seas: and God saw
t was good. And God said, Let the earth
forth grass, the herb yielding seed, and the
ree yielding fruit after his kind, whose seed
self, upon the earth: and it was so. And the
brought forth grass, and herb yielding seed
his kind, and the tree yielding fruit, whose
was in itself, after his kind: and God saw
was good. And the evening and the morn-
ere the third day."

e difficulties which met the mediæval
s, at almost every turn, in their essays
forth the earlier events of the Creation,
not repeated in connection with the
s of the Third and three succeeding
. They had merely to represent, in
graphic manner and under simple con-
ns, objects which surrounded them in
daily lives, and were perfectly familiar
eir eyes—objects easily represented in
ing, mosaic-work, and carving.
inspection of the accompanying illustra-
Fig. 55, will show with what simple
and directness of purpose the Monreale
t has set forth the events of the Third
The figure of the Creator, in the
l attitude, seated upon the zoned globe
se, and with right hand stretched forth,
troduced on the left of the subject. In
t of the Creator is what may be looked
n as an arm of the sea running into the
land, its shores clearly defined by dividing lines. The feet of the Creator rest, for the first time in this series of subjects, upon dry land; and close to them grass is depicted as springing from the ground. Beyond the water are represented trees of quaint and curious formation; and in the background is shown what is evidently intended for a rocky mountain. The whole treatment is of the simplest character. In the first place, the waters are gathered together and confined, and the dry land is shown: and, in the second place, the newly created grass, the herb yielding seed, and the fruit tree yielding fruit, are depicted as if springing from the earth at the Creator's command.

In the St. Mark's series, the youthful figure of the Creator, accompanied by three angels, is depicted calling into existence the grass, herb, and fruit trees. The apple tree is clearly indicated.

There is not any great diversity of treatment possible in the artistic representation of the events of the Third Day of the Creation. Water, dry land, and vegetation are all the artist has to depict, arranged in some simple manner in relation to the figure of the Creator. The chief diversity is to be found in the portraitures of the Deity, as previously pointed out.

Fifth Subject.

Text.—"And God said, Let there be lights in the firmament of the heaven to divide the day from the night; and let them be for signs, and for seasons, and for days, and years. And God made two great lights; the greater light to rule the day, and the lesser light to rule the night; he made the stars also. And God set them in the firmament of the heaven to give light upon the earth. And the evening and the morning were the fourth day."

It is somewhat remarkable that of all the greater acts of Creation, that of calling into existence the heavenly bodies—the sun, moon, and stars—should have been entirely omitted from the series of subjects in the Cathedral of Monreale. It is not an easy matter to account for this missing link; for we can scarcely attribute it to any difficulty connected with the subject itself. It would be a very simple matter, following the methods adopted by the Monreale artist in his other subjects, to fill up the hiatus in his series. We can imagine the figure of God the Creator, seated on the zoned orb, with feet resting either on the earth or on clouds, and with right hand elevated towards the firmanent of heaven; and appearing therein representations of the sun, moon, and stars, created at the word of the Deity.

In the series of subjects in St. Mark's vestibule, this Day is very graphically set forth. The youthful figure of the Creator is depicted standing, attended by four angels: before Him is a globe, representing the firmament of heaven, studded with the sun, the moon, and numerous stars. This treatment is simple, and accords with that which obtains in the subject setting forth the creation of light and its subsequent division from darkness, alluded to in our remarks on the second subject, or the First Day.

In the Greek "Guide to Painting," we find no instructions for depicting any of the acts or Days of Creation prior to the creation of Adam; accordingly, we are without direct and written directions respecting the accepted Greek methods of setting forth the creation of the heavenly bodies.

In the West, artists showed a very general preference for the subject under consideration; and they frequently depicted the Creator in rather undignified attitudes. The Deity is represented, in some instances at least, as if undergoing considerable exertion, with extended arms, and holding, or supporting, in His hands the sun and moon. Speaking of this subject, Lady Eastlake correctly remarks:—"Another subject which also obtained the artist's preference was that of the Creation of the Sun and Moon. Classic impersonation lent its help here. An example from the 10th century is seen in a miniature in the British Museum (Cotton, Claudius, B. iv.), where the Creator appears in the most animated action, as if dancing, while He extends His arms to call into being two orbs, which are represented as bust-length figures, with torches, and drawn, both exactly alike, by red oxen. The action of the extended arms calling the sun and moon into existence on each hand, is a composition by no means unfrequent in miniatures (one may be observed in a bible at Brussels, in the Library



Fig. 55.

of the old Dukes of Burgundy, where almost the same animated action is preserved in the Creator), and was thus handed down to Michael Angelo, who adopted it in the Sistine Chapel ceiling. The same incident occurs in the mosaics of the cupola in the Baptistery at Florence."

(To be continued.)

"BUILDING NEWS" DESIGNING CLUB.

AWARD OF PRIZES, SESSION 1890-91.

THE following are the results of the several competitions held during last session by the members of "our" Designing Club, which has now completed its 14th year, seeing that we inaugurated it in January, 1877, since which time much good work has been accomplished, as published results bear witness; and not a few of the members who did so much to contribute towards that success have since taken good positions in the profession, and are now busily occupied in lucrative and artistic engagements.

During the session for 1890-91 the subjects set were eight in number, and were thus competed for:—

A.—A Small School of Art for a Village.—1, "Spider"; 2, "G." in a horseshoe; 3, "Multum in Parvo"; 4, "M.P."; 5, "Walmer."

B.—A Small Detached Country House.—1, "Philomath"; 2, "Forward"; 3, "Syphax"; 4, "Red Lion"; 5, "Granite City."

C.—A Mountain Church.—1, "Multum in Parvo"; 2, "Spectre"; 3, "Red Lion"; 4, "Syphax"; 5, "Old Michael."

D.—A Country Railway Station.—1, "Eighteen '91"; 2, "Charl"; 3, "Flint"; 4, "Syphax"; 5, "Multum in Parvo."

E.—A Village Free Library.—1, "Multum in Parvo"; 2, "Spectre"; 3, "Eighteen '91"; 4, "Black Prince"; 5, "Albyn."

F.—An Architect's House and Offices.—1, "Thinlin"; 2, "Eighteen '91"; 3, "Spectre"; 4, "G." in a horseshoe; 5, "Streona."

G.—A Country Gentleman's Stables.—1, "Eighteen '91"; 2, "Thinlin"; 3, "Flint"; 4, "Spectre"; 5, "Philomath."

H.—A Tennis Club Pavilion and Summer House.—1, "Eighteen '91; 2, "Spectre"; 3, "Albyn"; 4, "Smilash"; 5, "G." in a horseshoe."

"Eighteen '91" therefore comes first (Mr. Heber Rimmer, 6, Abbey-square, Chester); "Multum in Parvo" wins the second prize (Mr. L. Kitchen, 48, Thompson-street, Ardwick, Manchester); "Spectre" ranks third (Mr. C. E. Hutchinson, 20, Keppel-street, Russell-square, W.C.); hon. mention is awarded to "Thinlin," who obtains the fourth place; "Philomath" and "G." in a horseshoe (Mr. A. F. Milligan, Liverpool, and Mr. A. W. Newman, Bloomsbury-square, W.C.) are equal in points for the fifth place; and "Flint" (Mr. M. J. Hay, Leith, N.B.) and "Syphax" (Mr. L. E. G. Collins, Tonbridge) are also ties for the sixth position. The remainder we cannot further classify.

The prizes thus awarded are £10 10s. for the first, £5 5s. for the second, and £3 3s. for the third best series of designs.

CONDITIONS FOR SESSION 1891—1892.

The following list of rules must be observed in every particular by all competitors:—

1. Drawings to be sent in 28 days after the publication of the list of subjects.

2. Usually two subjects will be given every month, from which a competitor may choose.

3. The drawings to be executed in firm black lines on white drawing-paper, in sheets of the absolute size of 22in. by 14in., with no washes or tinting in colour whatever. Outline to be the first consideration; but drawings may be slightly shaded with shadows executed wholly in line. Sectional parts to be shown in ruled "hatching" or blocked in. The scale to be used will be given with each subject.

4. Drawings to be forwarded unmounted, by post, care being taken to roll the short way of the drawing, as packages over 18in. long are not transmissible by Book post.

5. On entering the class (which may be done at any time), each competitor is required to furnish his name and address, which must be written legibly on the back of each drawing, as a guarantee of good faith, the *nom de plume* the author intends to adopt being boldly marked on the front of each separate drawing.

6. Prizes of £10 10s., £5 5s., and £3 3s. will be awarded to the best series of designs, such series not to consist of less than six subjects. Our decision to be final.

7. Before awarding the prizes any contributor will be expected to furnish proof, if necessary, as to his age, and the time during which he has been engaged in professional pursuits, though no candidate need be strictly an architectural student.

8. We reserve the right of arranging the drawings for publication in any manner we deem necessary.

9. A critical notice of the designs sent in of each series will be given in an early issue following the receipt of the drawings.

FIRST LIST OF SUBJECTS.

A.—*A Small Convalescent Home* on a detached site at the foot of a cliff facing the sea. The frontage to be 100ft. long, and measuring 60ft. deep, with a fall from back to front of 5ft. The building is to set back 15ft. from the frontage line. Accommodation to be provided for twenty-four patients, equally divided among the sexes. The day-rooms and dormitories are to overlook the sea, and have open verandahs, reached from a glazed door either immediately out of or adjoining the several rooms. A bath-room, lavatory, cloakroom, and two w.c.'s in each of the two departments, and also a nurse's bedroom commanding the dormitories. The administrative department is to be located in the centre of the block, and is to include a committee room, a matron's sitting-room, a dining hall entered from both departments, a kitchen, and its usual offices. Separate entrances and staircases to be provided. A small turret for bell and clock to form a feature in the design, which is to be treated in red brick and tile hanging, with tiled roofs. Scale 8ft. to the inch for elevations, and 16ft. to the inch for the plans. The block plan may be smaller. Send two plans, two elevations, one section, and a sketch.

Portrait busts of the late Bailie Harris and of his sister, Miss Harris, who gave munificent bequests to further the cause of the higher education in Dundee, are about to be placed, one in the High School for Boys, and the other in the High School for Girls, which benefited greatly by their liberality. The busts have been executed by Mr. John Hutchinson, R.S.A.

PRICES.—XXI.*

(All Prices Include Profit).

JOINER (*continued*).

		£	s.	d.
HANDRAILS in Honduras Mahogany, finished for polishing—				
2 by 3½ moulded and writhed ...	per foot run	0	7	6
2½ by 4 ditto ...	ditto	0	10	0
3 by 4½ ditto ...	ditto	0	12	0
HANDRAILS in Wainscot oak, finished for polishing—				
2in. round ...	per foot run	0	0	11
2 by 3 oval ...	ditto	0	1	4
2 by 3½ moulded ...	ditto	0	2	0
2½ by 4 ditto ...	ditto	0	2	6
3 by 4½ ditto ...	ditto	0	3	0
2 by 3½ ditto ramped ...	ditto	0	3	3
2½ by 4 ditto ditto ...	ditto	0	4	6
3 by 4½ ditto ditto ...	ditto	0	6	0
2 by 3½ ditto level circular ...	ditto	0	5	0
2½ by 4 ditto ditto ...	ditto	0	6	0
3 by 4½ ditto ditto ...	ditto	0	7	9
2 by 3½ ditto writhed ...	ditto	0	8	0
2½ by 4 ditto ditto ...	ditto	0	11	0
3 by 4½ ditto ditto ...	ditto	0	13	0
SCROLLS in Pitch-pine, to—				
2 by 3 oval, including ramp ...	each	0	8	0
2 by 3½ moulded ...	ditto	0	10	0
2½ by 4 ditto ...	ditto	0	13	6
3 by 4½ ditto ...	ditto	0	17	6
DITTO, in Hondurus mahogany—				
2 by 3 oval ...	ditto	0	12	0
2 by 3½ moulded ...	ditto	0	15	0
2½ by 4 ditto ...	ditto	1	0	0
3 by 4½ ditto ...	ditto	1	2	6
DITTO, in Wainscot oak—				
2 by 3 oval ...	ditto	0	13	0
2 by 3½ moulded ...	ditto	0	16	6
2½ by 4 ditto ...	ditto	1	2	0
3 by 4½ ditto ...	ditto	1	5	0

(Price half rails at half the price given for whole rails, plus a little for cutting and fixing in two.)

Joints and hand-rail screws in hardwood, according to size of rail ...	each, 1s. 3d. to	0	1	9
Grooving for iron core, straight	per foot run	0	0	1
Ditto circular or ramped ...	ditto	0	0	2
Ditto writhed ...	ditto	0	0	3
Ditto for scroll ...	ditto	0	0	3
Any fitting to be charged extra.				
French polishing small rails ...	per foot run	0	0	4
Ditto large ...	per foot super.	0	0	6
Scraping and polishing small rails,	per foot run	0	0	6
Ditto large ...	per foot super.	0	0	8
Ends framed to newels ...	each, 6d. to	0	0	9
Ditto cut and pinned to walls ...	each	0	0	6
DADO: deal—				
½ matched and beaded or V-jointed, upright, in narrow widths, on and including battens ...	per foot super.	0	0	2½
Add if backings are plugged to brick walls ...	ditto	0	0	0½
Ditto fixed diagonally, not including waste, or any fair cutting ...	ditto	0	0	0½
Ditto fixed upright, circular on plan ...	ditto	0	0	1
Ditto ditto ditto quick sweep	ditto	0	0	2
Ditto ditto ditto ditto, where worked circular on face ...	ditto	0	0	5
Ditto fixed raking same price as diagonally, and all labours extra ...				
⅞in. matched and beaded or V-jointed, upright, in narrow widths, on and including backings or battens ...	per foot super.	0	0	3
Add for plugging, as before ...	ditto	0	0	0½
Ditto fixed diagonally, as before	ditto	0	0	0½
Ditto ditto upright circular on plan ...	ditto	0	0	1½
Ditto ditto ditto quick sweep	ditto	0	0	3
Ditto ditto ditto worked circular on face ...	ditto	0	0	5
Ditto "raking" same price as "diagonally" ...				
1in. matched and beaded, or V-jointed, upright, in narrow widths on and including backings ...	per foot super.	0	0	4
Add for plugging, as before ...	ditto	0	0	0½
Ditto fixed diagonally ...	ditto	0	0	0¾
Ditto upright, circular on plan	ditto	0	0	1½
Ditto ditto ditto quick sweep ...	ditto	0	0	3
Ditto ditto ditto worked circular on face ...	ditto	0	0	5
1½in. matched and beaded, &c., as above ...	ditto	0	0	4½
Add if fixed diagonally ...	ditto	0	0	0½
Ditto ditto upright circular on plan ...	ditto	0	0	2
Ditto ditto ditto quick sweep	ditto	0	0	4
Ditto ditto ditto worked circular on face ...	ditto	0	0	5
Ditto for plugging, as before ...	ditto	0	0	0½
EXTRAS—				
Mitred and tongued angles, thickness averaged ...	per foot run	0	0	3
Staff-headed ang es ...	ditto	0	0	1½
Fair cutting to ramps (waste added to measurement) ...	ditto	0	0	2
Ditto to raking lines "fair edge cross-grain" ...	ditto	0	0	1½
1 by 2 moulded capping, fixed complete ...	ditto	0	0	2½
Ditto ditto fixed raking ...	ditto	0	0	3
Ditto ditto worked circular ...	ditto	0	0	6
Ditto ditto ditto quick sweep	ditto	0	0	7½
1½ by 3 ditto ditto ...	ditto	0	0	3

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		£	s.	d.
1½ by 3 fixed raking ...	per foot run	0	0	
Ditto worked circular ...	ditto	0		
Ditto ditto quick sweep ...	ditto	0		
Mitres ditto ditto averaged ...	each	0		
Return moulded ends ...	ditto	0		
Ends housed ...	ditto	0		
1in. square framed dado, ordinary sized panels, and rough on back ...	per foot super.	0		
Add for moulding ...	ditto	0		
Add for small panels square ...	ditto	0		
Ditto ditto moulded ...	ditto	0		
Add for framing raking ...	ditto	0		
Bead butt same price as moulded				
Add for bead flush over square	ditto	0		
1½ square framed ...	ditto	0		
Add for moulded or bead butt ..	ditto	0		
Ditto small panels ...	ditto	0		
Ditto ditto ditto moulded ...	ditto	0		
Ditto for framing raking ...	ditto	0		
Ditto bead flush over square ...	ditto	0		
1½ square framed ...	ditto	0		
Add for moulded or bead butt ...	ditto	0		
Ditto small panels ...	ditto	0		
Ditto ditto ditto moulded ...	ditto	0		
Ditto framing raking ...	ditto	0		
Ditto bead flush over square ...	ditto	0		
Ditto for machine-worked "linen" moulded raised panels	ditto	0		
Ditto for ordinary raised panels over square ...	ditto	0		
Add for carved ends to linen panels	each end ..	0		

FRAMED PARTITIONS, deal—

None of the following prices include anyt
but the bare framing; the one side applie
wall framing, as filling over dadoes, &c.

		£	s
1in. wrought one side and square framed ...	per foot super.	0	
Add for bead butt or moulded one side ...	ditto	0	
Ditto flush ...	ditto	0	
1in. wrought two sides and square framed ...	ditto	0	
Ditto bead butt or moulded each side ...	ditto	0	
Ditto ditto flush ...	ditto	0	
Ditto bolection moulded ...	ditto	0	
For stop chamfered ...	ditto	0	
Ditto ditto, top part sashed ...	ditto	0	
Ditto ditto, top panels left out for glass, and including beads or mouldings to one side ...		0	
Add for diminished stiles ...		0	
1½ ditto square framed ...	ditto	0	
Add other items as last ...			
1½ ditto square framed ...	ditto	0	
Add other items as to 1in. ...			
1¾ do. square framed ...	ditto	0	
Add other items as to 1in. ...			
2in. ditto square framed ...	ditto	0	
Add other items as to 1in. ...			
2½ ditto square framed ...	ditto	0	
Add other items as to 1in. ...			
2½ ditto square framed ...	ditto	0	
Add as before ...			
Add for ⅜in. by 2½in. wrought stops ...	per foot run	0	
Add for rebates ...	ditto	0	
Add for beads ...	ditto	0	
Add for floor or ceiling fillets ...	ditto	0	
Add extra for framing doors in ditto averaged each ...		0	
Add for notchings ...	ditto	0	
Ditto long ditto ...	ditto	0	
The price includes fitting or scribing to plain even surfaced walls, ceilings, or floors, but where uneven scribing it must be allowed at ...	ditto	0	
Add for loose beads ...	per set	0	
Ditto mouldings, large ...	ditto	0	

Ceiling cornices in framings will be g
farther on, under architraves and mouldings

Partitions formed of match boarding ma
priced at the list already given.

Add ledging to 1in. ...	per foot run	0
Ditto to 1¼in. ...	ditto	0
Add for quarters of 4in. by 2in. with posts of 4in. by 3in., and sills and heads 4in. by 3in. ...	ditto	0
⅜in. wrought and chamfered or beaded fascia planted on framing ...	per foot super.	0
Add for moulding ...	ditto	0
⅝in. ditto ditto ditto	ditto	0
¾in. ditto ditto ditto	ditto	0
½in. ditto skirting planted on framing ...	ditto	0
⅝in. ditto ditto ditto	ditto	0
¾in. ditto ditto ditto	ditto	0
1in. ditto ditto ditto	ditto	0
Ends returned ...	ditto	0
Ditto housed ...	ditto	0
Ditto mitred ...	ditto	0
Ditto stopped ...	ditto	0
Ditto scribed ...	ditto	0
INCLOSURES to counters and shop fronts—		
1in. wrought one side and squared framed counter inclosure, not including rough bearers ...	per foot super.	0
Add for moulding or bead butt one side ...	ditto	0
Ditto for bead flush ...	ditto	0
Ditto bolection ditto ...	ditto	0
Ditto raised panels and moulded	ditto	0
Ditto ditto and bolection ditto ..	ditto	0
Ditto for made movable in lengths and screwed extra ...	ditto	0
Ditto and ditto hung with butts	ditto	0
1½in. square framed ...	ditto	0

		£	s.	d.
l other extras as to 1in.	per foot super			
ld if in narrow widths as to				
hutters	ditto	0	0	2
l fitting and fixing of iron-				
nongery extra	ditto			
n. square framed	ditto	0	0	8
e last as to extras				
. ditto	ditto	0	0	9½
e extras above				
low extra for framing door				
rung with butts	ditto	0	0	3
ld for stop for ditto	each	0	0	6
lain pilasters planted on two				
raming stiles, and 5in. wide...	per foot run	0	0	3
ds worked fair, cross grain	each	0	0	2
ulded caps mitred round	ditto	0	0	9
to neckings	ditto	0	0	6
to bases	ditto	0	1	0
y 6 pilasters as above.....	ditto	0	0	4
. flutings.....	per foot run	0	0	3
. ditto	ditto	0	0	4
ni stops to ditto	each	0	0	3
ayed ditto	each	0	0	2
p chamfers.....	per foot run	0	0	1½
ay stops	each	0	0	2
ulded ditto.....	ditto	0	0	4
late	per foot run	0	0	1
d	ditto	0	0	0¾
or circular framing, &c., takes three times				
t prices of straight.				
or small sizes, add 20 per cent.				
oors, deal—				
deal, wrought one side and				
dged	per foot super	0	0	5
o ditto two ditto	ditto	0	0	6
o grooved and tongued	ditto	0	0	7
o ditto and grooved or V-				
inted.....	ditto	0	0	7½
o out of match battens	ditto	0	0	6
l if small, as to trap doors ...	ditto	0	0	1
l, wrought and beaded both				
des or V-jointed	ditto	0	0	1
deal wrought one side and				
dged with 1½ ledges	ditto	0	0	5½
o two ditto	ditto	0	0	6½
o grooved and tongued	ditto	0	0	7½
o ditto and beaded or V-				
inted.....	ditto	0	0	8½
er extras as above.				
itto and 1½ ledges	ditto	0	0	6
o wrought two sides.....	ditto	0	0	7
o grooved and tongued	ditto	0	0	8
o ditto and beaded or V-				
inted.....	ditto	0	5	9
r extras as above.				
keleton framed and braced				
or, covered with ⅜ match				
ttens all over, or between				
les, battens, beaded or V-				
inted.....	ditto	0	0	11
itto	ditto	0	1	0
, if battens are laid diagon-				
y on the face	ditto	0	0	2
itto.....	ditto	0	1	1
ditto and 1in. battens.....	ditto	0	1	2
itto ditto	ditto	0	1	4
itto ditto	ditto	0	1	6
WARF DOORS—				
square framed, one panel...	per foot super.	0	0	8
for bead butt	ditto	0	0	1
o ditto flush	ditto	0	0	2
for moulding each side	ditto	0	0	1
o bolection ditto	ditto	0	0	2
o stop-chamfered, and splay				
ps one side.....	ditto	0	0	4
o raised panels	ditto	0	0	6
square framed, two panels ...	ditto	0	0	9
for bead butt or moulded	ditto	0	0	1½
o ditto flush	ditto	0	0	2½
o stop-chamfered and splay				
ps.....	ditto	0	0	6
o raised panels	ditto	0	0	9
square framed, one panel	ditto	0	0	9
for bead butt or moulded	ditto	0	0	1
o ditto flush	ditto	0	0	2
o stop-chamfered and splay				
ps.....	ditto	0	0	4
o raised panels	ditto	0	0	6
square framed, two panels	ditto	0	0	10
for bead butt or moulded	ditto	0	0	1
o ditto flush	ditto	0	0	2
o stop-chamfered and splay				
ps.....	ditto	0	0	6
o raised panels	ditto	0	0	9
square framed, one panel	ditto	0	0	11
for bead butt or moulded	ditto	0	0	1
o ditto flush	ditto	0	0	2
o stop-chamfered and splay				
ps.....	ditto	0	0	4
o raised panels	ditto	0	0	6
square framed, two panels	ditto	0	1	0
for bead butt or moulded	ditto	0	0	1
o ditto flush	ditto	0	0	2
o stop-chamfered and splay				
ps.....	ditto	0	0	6
o raised panels	ditto	0	0	9
to any of the above if hung				
ding.....	ditto	0	0	1
piece of framing less than 4ft. super. to				
priced according; only one foot price at				
ice the ordinary price, and intermediate				
es at the same rate.				
ORS: two-panel—				
square framed	per foot super	0	0	8
ditto	ditto	0	0	9
o ditto bead butt and square	ditto	0	0	10
o ditto flush	ditto	0	0	11
o ditto moulded	ditto	0	0	10
o ditto bolection	ditto	0	0	11
o ditto bead butt both sides	ditto	0	0	11
o ditto bead flush	ditto	0	1	1
o ditto and moulded	ditto	0	1	0

		£	s.	d.
1½in. square stop-chamfered plain stops one side	per foot super	0	1	1
Ditto ditto ditto two sides.....	ditto	0	1	5
1½in. linings or frame for cup- board, add measured over doors and frame	ditto	0	0	1
1½in. square framed.....	ditto	0	0	9½
Ditto bead butt and square	ditto	0	0	10⅓
Ditto bead flush one side	ditto	0	0	10½
Ditto ditto both sides	ditto	0	1	1⅓
Ditto moulded	ditto	0	0	1⅔
Ditto ditto both sides	ditto	0	0	11½
Ditto ditto one side bolection moulded	ditto	0	1	0⅓
Ditto bead butt both sides	ditto	0	0	11⅔
Ditto top panels out for glass, and including one set of beads	ditto	0	1	0½
Ditto top panels sashed for glass	ditto	0	1	4
Ditto ditto small squares	ditto	0	1	6
Add to any of the above for hung folding (all rebates and beads extra)	ditto	0	0	1
Ditto with bottom panels raised top out for glass	ditto	0	1	6
Ditto and top sashed	ditto	0	1	9
1½ outside door bottom panel bead butt one side, and moulded the other to panel sashed	ditto	0	1	4
2in. square framed	ditto	0	0	10½
Ditto bead butt and square	ditto	0	0	11⅓
Ditto ditto both sides	ditto	0	1	0⅔
Ditto bead flush and square	ditto	0	1	0⅔
Ditto ditto both sides	ditto	0	1	2⅓
Ditto moulded and square.....	ditto	0	0	10⅓
Ditto ditto both sides	ditto	0	1	0⅓
Ditto ditto one side bolection moulded	ditto	0	1	1⅓
Ditto stop-chamfered one side and with plain stops	ditto	0	1	2⅓
Ditto ditto both sides	ditto	0	1	6⅔
Ditto raised panels (2)	ditto	0	1	5
Ditto ditto both sides	ditto	0	1	11
Add for top panels left out for glass and including one set of beads.....	ditto	0	0	2
Add for top panel sashed	ditto	0	0	4
Ditto ditto small squares	ditto	0	0	6
(Beads or mouldings to keep the glass in, are to be allowed beyond the prices given above.)				
Add if folding (all rebates, &c., extra)	ditto	0	0	1
Doors: four-panel—				
1in. square framed	ditto	0	0	9
1¼ ditto	ditto	0	0	9½
Ditto bead butt one side.....	ditto	0	0	10⅓
Ditto ditto two sides	ditto	0	0	11⅓
Ditto bead flush one side	ditto	0	0	11
Ditto ditto two sides	ditto	0	1	1⅓
Ditto moulded one side	ditto	0	0	10⅔
Ditto ditto two sides	ditto	0	0	11½
Ditto ditto one side bolection	ditto	0	1	0⅔
Stop-chamfered one side plain, stops only	ditto	0	1	1⅓
Ditto ditto both sides	ditto	0	1	5⅓
Ditto raised panels one side	ditto	0	1	4
Ditto ditto two sides	ditto	0	1	10
Add for top panels left out for glass, and including one set of beads	ditto	0	0	1
Add if folding	ditto	0	0	1
1¼in. squared framed	ditto	0	0	10
Ditto bead butt one side.....	ditto	0	0	11
Ditto ditto two ditto	ditto	0	1	0
Ditto bead flush one side	ditto	0	1	0
Ditto ditto two ditto	ditto	0	1	2
Ditto moulded one side	ditto	0	0	11
Ditto ditto two ditto	ditto	0	1	0
Ditto ditto one side bolection ...	ditto	0	1	1
Ditto stop-chamfered one side with plain stops only	ditto	0	1	2
Ditto ditto both sides	ditto	0	1	6
Ditto raised panels one side.....	ditto	0	1	4
Ditto ditto two ditto.....	ditto	0	1	10
Add for top panels left out for glass, and including beads one side	ditto	0	0	1
2in. square framed	ditto	0	0	11
Ditto bead butt one side.....	ditto	0	1	0
Ditto ditto two ditto.....	ditto	0	1	1
Ditto ditto flush one side	ditto	0	1	1
Ditto ditto two ditto.....	ditto	0	1	3
Ditto moulded one side	ditto	0	1	0
Ditto ditto two ditto	ditto	0	1	1
Ditto ditto one bolection moulded	ditto	0	1	2
Ditto stop-chamfered one side, plain stops only.....	ditto	0	1	3
Ditto ditto ditto two sides.....	ditto	0	1	7
Ditto raised panels	ditto	0	1	5
Ditto ditto two sides	ditto	0	1	11
Add for top panels out for glass, not including beads to keep glass in	ditto	0	0	1
Add if hung folding (no labour included).....	ditto	0	0	1
Add for extra thick panels to outer doors	ditto	0	0	1
Add for top panels sashed in one.....	ditto	0	0	4
Ditto ditto small squares	ditto	0	0	6
Ditto for frieze rail	ditto	0	0	2
2½in. square framed.....	ditto	0	1	1
Ditto bead butt one side.....	ditto	0	1	2
Ditto ditto two ditto	ditto	0	1	3
Ditto ditto flush one side	ditto	0	1	3
Ditto ditto ditto two ditto.....	ditto	0	1	5
Ditto moulded one side	ditto	0	1	2
Ditto ditto two ditto	ditto	0	1	3
Ditto ditto (bolection moulded over)	ditto	0	1	4
Ditto stop-chamfered one side and including plain stops only	ditto	0	1	5
Ditto ditto two sides	ditto	0	1	9
Ditto raised panels	ditto	0	1	7
Ditto ditto two sides	ditto	0	2	1

		£	s.	d.
Add for top panels out for glass, not including beads to put glass in.....	per foot super	0	0	1
Add if hung folding.....	ditto	0	0	1½
Add for thick panels to outer doors.....	ditto	0	0	1⅓
Add if top panels sashed in one	ditto	0	0	4
Ditto in small squares.....	ditto	0	0	6

HOT-WATER ENGINEERING.—XX.

Supply of Hot Water for Baths and Domestic Purposes.

Low-pressure Boilers.

NEARLY every range which has but one oven has a boiler at the opposite side of the fire, this boiler nearly always being merely of a square cistern shape with a cover; usually it is cast iron. This is termed a low-pressure boiler, the general meaning of the term being that it is a boiler which can only supply hot water at or below its own level. There is, however, another kind of low-pressure boiler which is used with ranges having an oven upon each side of the fire. In this case the boiler goes at the back of the fire, and is boot shaped, as Fig. 68. This boiler, it will be seen, is very

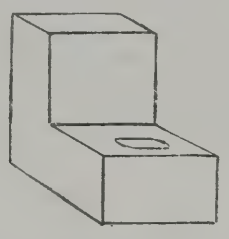


Fig. 68.

similar to a high-pressure boiler, but it has no flues; its contents are heated by the fire which rests against its toe portion (which forms a back to the fire-box). This is quite sufficient to keep the water nearly always on the boil; in fact, the only complaint against these boilers is that they heat too rapidly, and the constant boiling proves an annoyance. This boot boiler is made of wrought plate, and it "furs" very rapidly with hard waters. It must be cleaned out regularly, or it will become fractured, like a high-pressure boiler.

Both descriptions of boilers should be connected with an automatic or self-filling apparatus, particularly the latter, which cannot be filled by hand. The self-supply apparatus, as everyone knows, consists of a small cistern, placed at the side of the range opening, and connected with

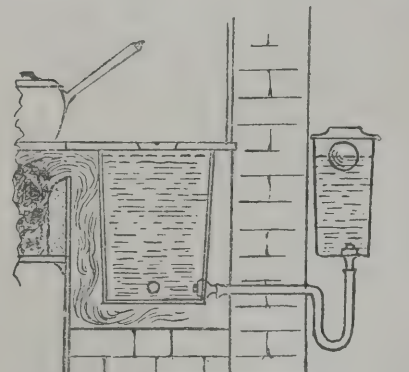


Fig. 69.

the boiler by a short service, as Fig. 69. The cistern is kept supplied with water by a ball-valve. It will be seen that the boiler is kept filled with water by the mere fact that water finds its own level in two or more vessels, whatever their shape or size, provided there is free communication between them. It matters not how small the communicating pipe may be, provided it is clear. The level will be the same in all the vessels alike, whether water be added or withdrawn.

The chief error that is made in fitting up or

connecting these useful little appliances to side boilers is that the level of water is not made high enough. Commonly it is arranged for the boiler to fill up to about 3in., sometimes 4in., of the top, and this leaves the part of the boiler which receives the greatest heat and wear unprotected, and the life of the boiler is greatly shortened. Sometimes it is argued that this space is needed for boiling; but such is not the case. For the actual expansion of the water in being heated, a ¼in. would suffice; but to allow for ebullition it is best to allow 1in. or 1¼in. space. This is ample, for the boiling is never very violent in these boilers.

It has been said that if the water level is low the steam from the water would protect the upper part of the boiler; but this is also incorrect. In the first place, we do not get steam except when the water is actually boiling, and when steam is generated, it is a gas, and in no way moist while at a high temperature. The last illustration shows the water level high, as it should be; and it also shows the flame leaving the fire-box and impinging directly against the upper part of the boiler, as happens with nearly every make of range. In the service between the cistern and boiler is shown the customary dip or siphon (inverted). The use of this is to prevent the contents of the cistern being heated, as was fully explained in an earlier paper.

Sometimes these boilers are made with a neck, as Fig. 70, the object of the neck being to admit of the flame passing across the top of the boiler, and then down the outer side. With these boilers there is a joint just where the neck joins the body of the boiler, and it is usually necessary

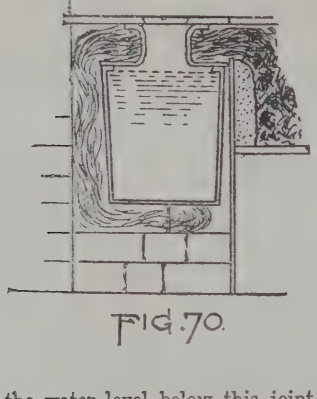


FIG. 70.

to keep the water-level below this joint, otherwise a leakage will, in the majority of cases, occur at this point.

Now every range with a side boiler has the tap inserted at a low point, within about 2in. of the bottom of the boiler. This is very proper, as it permits of all the hot water being withdrawn—in fact, the boiler emptied, supposing it is not connected with a self-filling apparatus. When a self-filling apparatus feeds the boiler, a quite new feature is introduced in the fact that cold water is introduced just as fast as water issues from the tap, and as the cold water enters at the bottom and the tap is at the bottom, what is more natural than for the cold water to flow in and pass across the bottom of the boiler and out of the tap, without disturbing the lighter hot water in the top of the boiler?

This is what really happens, and supposing we have a boiler quite full of hot water, it is impossible to withdraw more than a fourth of it if the boiler is supplied from a feed-cistern. Directly the tap is opened hot water issues; but the very same instant cold water flows in, and it will be found to take a direct passage to the tap, and the issuing water will then be cold, although by inserting the hand at the top of the boiler, the water inside will be found very hot. Properly speaking, when a boiler is automatically fed the tap should be inserted at a high position in the boiler, so as to draw from the top of the water, where it is hottest, and where the heated water will be found so long as any remains in the boiler.

This, however, cannot very well be done, and, fortunately, an easy (but very little known) remedy can be had in putting an elbow and a short upright pipe on the tap inside the boiler, as Fig. 71. This illustration shows the water entering near the bottom, as usual, but instead of finding an outlet at the bottom also, it has to push (so to speak) the hot water up and out, before it can pass through to the tap. This is, of course, all that can be desired. The want of this little arrangement has led to countless boilers being condemned as not getting hot, whereas

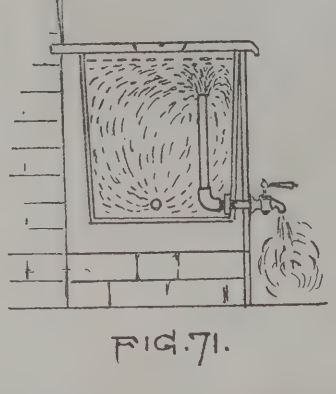


FIG. 71.

they have heated their contents well all the time, but it has not been known.

This means of drawing from the upper part of the boiler is desirable even for poor-heating boilers, as, supposing the contents of the boiler to be part hot and part cold, the hot will be found at top. Let it be noted that this upright pipe in the boiler must not reach too high, for the outflow of water at a boiler tap is always greater than the inflow of water from the ball-valve into the cistern. The pipe should terminate about 4in. below the normal water level. With ½in. and ¾in. taps, an ordinary iron (gas or steam) elbow and piece of pipe will do; but fully half the range taps used are ⅝in., and we have no iron pipe or fittings this size. To meet this difficulty, a brass-founder will make elbows ⅝in. by ¾in., or a ¾in. iron elbow can be soldered on to the nut of the range-cock.

In connecting up a boot boiler at the back of a range fire, a little different procedure has to be followed. Lead pipe ought not to be used for this work, as, it being nearly all situated behind the range, any leakage or trouble would necessitate the removal of the range to remedy it. Iron pipe should be used wholly, or at least for all those parts that come in the range opening.

Fig. 72 shows a boiler with all necessary connections. The boiler is supposed to be at the back of a range fire, and the pipes extend each side at the back to clear the ovens. The supply to the boiler is carried out in a similar manner to that adopted with a side boiler, except that the customary lead pipe should not be used. With this boiler, however, the cistern is fixed so that the water level in the boiler is 3in. or 4in. from the top. This is directly contrary to what was recommended with side boilers; but it is correct in this instance. In the first place, no fire heat comes against the top of the boiler, so that the

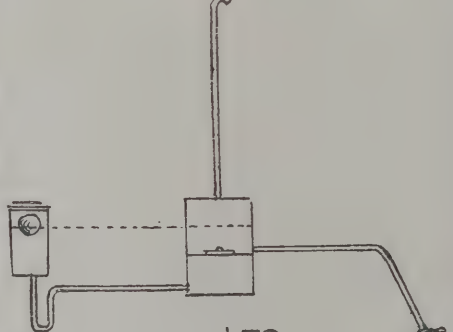


FIG 72

only objection to a low water level in a side boiler does not exist; secondly, with this boiler the water, as a rule, heats very rapidly, and the boiling is furious, and as the steam escapes by a pipe, it is necessary to prevent water entering the outlet, otherwise the escaping steam will eject it, a pint at a time occasionally. The ejected water is thrown into the chimney (as this expansion pipe is not usually taken outside), and consequently would come running down through the covering-in plate and flues of the range. It is therefore necessary to keep the level as low as stated.

The expansion pipe should be 1in., and it extends up about 2ft. above the range top. The upper end must be turned over as shown to prevent falling soot entering it. Sometimes when a fitter prefers to have his boiler fill higher than just recommended, he carries the expansion pipe up higher, to prevent water being ejected, but this is never a success unless the boiler happens to be somewhat poor in its heating capacity.

The draw-off service can be taken from either side or the back of the boiler, but upon the principle of drawing from the top of the water and away from where the cold water enters, the draw-off service should be connected about 4in. to 5in. below the water level—that is, about 8in. from the extreme top of the boiler. Both the draw-off and the cold supply services should be of good size, as these pipes fur up very rapidly. ¾in. pipe will become choked in a very short time in a busy house with a rapid-heating boiler, and 1¼in. should be used as a rule. A ¾in. tap is as that is needed, the pipe being reduced to take this. It is close to the boiler, where the furring is worst in these pipes.

It happens quite frequently that when a close top boiler—as these low-pressure boot boilers are—is used, a wish is expressed to have a service

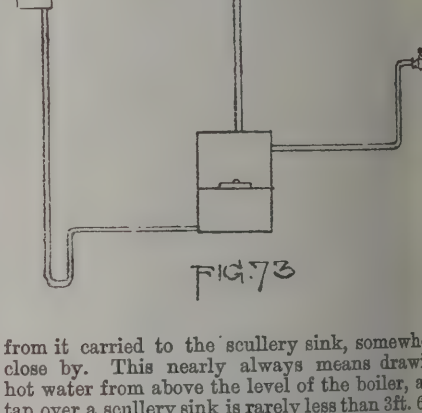


FIG. 73

from it carried to the scullery sink, somewhere close by. This nearly always means drawing hot water from above the level of the boiler, as a tap over a scullery sink is rarely less than 3ft. 6in. high. This is quite possible; but unless any precautions are taken, there may be perpetual annoyance experienced.

This is done by putting the supply cistern, say, 2ft. higher than the tap, and which will cause the water level to be up the expansion pipe some little distance, as Fig. 73. When doing this it is still desirable to connect the draw-off service into the boiler, and not take it from the expansion pipe. A better flow of water is insured this way. The particular trouble experienced is caused by the steam ejecting water from the expansion pipe in its efforts to escape, and as this pipe may have a fair quantity of water in it, there is no tolerating the matter. This is usually obviated by making the expansion pipe of unusual height, say 20ft. above the water level, but this is not always successful. This is, however, greatly assisted by putting a double bend in this pipe, as shown. This double bend is placed some 6ft. to 10ft. above the water level and its object is to arrest or retard the upward passage of the water thrown up by the steam.

CONTRACTORS' ESTIMATES FOR MERSEY TUNNEL.

THE Mersey Tunnel crossing of the Vyrnwy water main, which has been so disastrous to the contractors who undertook to construct for the Liverpool Corporation, is the subject of three lengthy reports to the water committee



PRINTERS' ALMSHOUSES, WOOD GREEN.

it body. The first is from Sir Benjamin ker, who states that, while the soil to be nelled through at Fidler's Ferry is more ying in character than that of any similar dertaking in this country, or in America, thin his experience, the great delays have en due, not to any inherent impracticability in undertaking, but are consequent upon the eral contractors underrating the difficulties d making an insufficient provision in the way of nt to overcome them. He recommends that the esent scheme should be carried out with certain difications in the shield. Mr. S. F. Deacon, the gineer of the Vyrnwy works, points out that the ginal proposal was to lay the pipes in the l of the Mersey, but that under pressure from ipowners the Board of Trade compelled the poration to construct a tunnel. The work s commenced in April, 1889, but the then ntractors, Messrs. Monk and Newell, deter- ned the contract in December, 1889, only the fts having been sunk, and a fresh contract s entered into with Messrs. John Cochrane and ns, of Westminster, for driving at a higher el than that originally contemplated, and these ntractors now in turn seek to be relieved of eir undertaking. Mr. Deacon adds that the ne required for the completion of the work not likely to be unreasonable, and that s belief is confirmed as to the practica- ity of the undertaking without immoder- e cost. It will be remembered that an bitration has been held with reference to e amount due to Messrs. Monk and Newell der their contract, which went against the verpool Corporation. It will also be fresh in e memory of our readers that Mr. John chrane committed suicide a few weeks since consequence of worry. A third report is made the chairman and vice-chairman of the water mmittee of the corporation. They state that hereas Messrs. John Cochrane and Sons under- ok to complete the tunnel for £12,000 plus the st of fresh castings and ironwork (estimated at ,000) over and above those taken over from essrs. Monk and Newell, they expended up to e 24th September last in all £18,228 0s. 10d., d received under the engineer's certificates ,303 7s. 9d., thus showing a sum of £13,924 13s. 1d. as the amount which they are out of pocket in expenditure on the works up to the 24th September last. As a set off against this loss is the retention money and the cost of castings on the ground, in all £2,117 10s. 3d., which, if paid to the contractors, would reduce their loss to £11,807 2s. 10d.; but the loss would, on the other hand, be further increased on the re-sale of plant. The work done by the contractors comprises the Lancashire shaft and 185ft. of tunnel, and on the Cheshire side the shaft has been sunk to the required depth. The work remaining to be done is the completion of the shafts and the driving and the lining of 620ft. of tunnel. The contractors have informed the committee that they are not in a position to carry out and complete their present contract, and desire to be relieved therefrom, and make an arrangement with the corporation. Two questions therefore arise—first, whether it is desirable for the corporation to endeavour to complete the works according to the present scheme; and, secondly, if it is desirable to do so, whether the work can be carried on by the present contractors more expeditiously than by some other contractors. The chairman and vice-chairman recommend, in accordance with the engineers' reports, that the works be completed according to the present scheme, and that the present contract be determined, the contractor to assign the retention money, deposit, and all plant, castings, and ironwork now on the ground, the corporation to pay the contractors £1,041 13s. 4d. as the value of all ironwork on the ground but not fixed, and the actual cost of all work done since September 24. They further recommend that a new contract be entered into with Mr. Harry Herbert Cochrane and Mr. Arthur Hamilton Cochrane (the surviving partners of the firm of John Cochrane and Sons) that they shall complete the works so far as possible with the present staff, Mr. Arthur Cochrane to give personal supervision, the corporation to pay the contractors the "prime cost" of all work done by weekly or fortnightly payments, and to provide all additional ironwork and plant. If the contractors shall complete the works to the satisfaction of the engineer, then the corporation shall pay them £4,800, and in case the expenditure incurred from the 15th October on the works included in "prime cost," and implements and materials (other than castings and ironwork), shall amount to a less sum than £8,428, then the corporation shall also pay the contractors the difference between the two amounts.

PRINTERS' ALMSHOUSES, WOOD GREEN.

THE central block only of these buildings was erected in 1847, from the design of the late Mr. W. Webbe, a well-known architect of his time. It contains a board room and residence for 12 married couples on two floors. In 1870 the late Mr. Henry Wright, of Kingston, left a sum of £2,000 for the erection of a wing in memory of his wife and mother, and a further sum of £1,000 was subscribed by the friends of the institute, which enabled two wings to be built, accommodating six widows and eight married couples respectively. A space was still left for four houses (eight inmates), and these have been erected, and opened last week by the Duchess of Albany. The architect of the wings in 1870 and the recent additions is Mr. Charles Bell, F.R.I.B.A., of 3, Salters' Hall-court, E.C. The builder in the former case was the late Mr. W. Henshaw, and in the latter Mr. John Mills, of Blackfriars. The buildings are very compact, in the Tudor style, of red brick and Bath-stone dressings. Our illustration shows the very effective entrance gateway with wrought-iron gates by Messrs. Lockerbie and Wilkinson, of Birmingham. The total cost of the wings, including external repairs to the old building, is about £2,500.

The town council of Guildford have received 152 applications for the appointment of borough surveyor, rendered vacant by the retirement of Mr. Henry Peak. The testimonials have been referred to a committee, who will make a selection of six.

It has been decided to apply for a faculty to restore the interesting parish church of Sevenhampton. Mr. F. W. Waller, of Gloucester, has presented a report which shows that the cost is expected to be nearly £1,000.

WAYSIDE NOTES.

THE Naval Exhibition is now closed, and people begin to venture suggestions for a future show. "Why not an Ecclesiastical Exhibition?" writes one. We talk of the army, navy, and the church, it is argued; then why not a Church or Ecclesiastical Exhibition? The proposal does not seem to me a very brilliant one. If the Church of England is to be mixed up with brass bands, open-air cafés, and three-and-sixpenny dinners, and all the rag-tag and bob-tail of the popular promenading exhibition, as it has developed in this country, then every sober-minded person, who has, withal, some feeling of veneration, will revolt at the idea. There is a special form of religion, with mob and music, pretty wide-spread nowadays, which might be left to take full care of matters of this kind. "Ancient churches, cathedrals, the colleges of Winchester and Eton, schools, and hospitals," and "architecture, painted glass, embroidery, &c.," would be all very well in their way; but even a churchman travelling on the broad-gauge will hesitate before putting "translations of the Bible . . . Books of Prayer, breviaries, and various forms of the Prayer Book, Ecclesiastical dress, cartoons, rites, and ceremonies and vestments" before a crowd of cheap-trippers, loungers, and average time-killing exhibition-haunters. What day the dignitaries of the Church of England might be found consenting parties to such a proposal we shall be warranted in talking in one and the same breath of religion and Punch-and-Judy shows, and mentally reverting to the times of the Pharisees. I trust that the reader will not think that I "fash" myself unnecessarily. When one of the foremost morning papers, commenting on the suggestion, says "We are far from thinking the suggestion of our correspondent unreasonable," it seems seasonable, for those who *are* thinking the suggestion unreasonable, to say a word. [Later. I find I might have saved myself the trouble of this paragraph. The "Reserve Forces" seem more likely to be on show next year. Still, I leave it in "as provision."—G.]

Your report of the steps taken at Coventry to mark the inclination of the spire of St. Michael's Church on the pavement under the tower must have been perused with considerable interest by all students of the ways of old Gothic builders. I allude not so much to the inclination of the spire as to the further facts discovered in connection with the setting-out of the original building. It seems very clear that the old builders were often exceedingly inexact in laying out the plans of churches, for it only needs a 5ft. rod and a little patience to ascertain this for oneself by measuring a number of ancient buildings. From the results it is evident, very often, that discrepancies have not—as might at first sight be imagined—arisen from settlements intervening since the building was erected, but are referable to an "original sin," the setting out having been inaccurately performed, according, at least, to our enlightened 19th-century views. It would be as interesting as it is impossible to know the exact causes of many of these irregularities in plan. Were the builders careless or indifferent, incompetent, or working "of malice aforethought"? One hardly likes to think that anyone setting out a plan would intentionally throw out the measurements; the idea seems incompatible with the simple honesty of Mediæval workmanship and design. More probably these inaccuracies have been the result of rough-and-ready methods of setting out and the absence of the perfected measuring devices of later days. Anyhow, it would be foolish for a modern builder to give an inch or two here and a half-foot there, thinking thereby to be more Gothic in spirit, although a noble carelessness of this sort might oftener—as many writers have pointed out—be observed in the detail which nowadays has more than a tendency to be mathematically executed, and, as a consequence, machine-like in effect.

It yet remains for some enterprising country gentleman to provide himself with an up-to-date moated grange. Regarding the Mediæval mud-bottomed and mud-banked moat as altogether behind the times, and seeing how really beautiful water looks when perfectly pure—which is not very often in London, by the bye—in swimming-baths constructed of glazed ware, light in tint and simple in design, the *fin-de-siècle* moat should be similarly constructed. This, as I say, remains to be done; but the owner of that beautiful old English home in the Kentish Weald—to wit, Ightham Mote—is showing the way. Some two months or so back I was looking round the old place and found divers works in progress thereat, learning, furthermore, that it was contemplated to *line the moat with cement*. It is currently reported that the new owner of the Mote disposed of the old oak furniture and re-upholstered with the assistance of Maple or one or another of the big furnishing houses. Providing that both the report and the information as to the cementing are correct, then to learn the one is to be prepared for the other.

Lauderdale House, in the newly-opened Waterlow Park, is condemned as unsafe. Consequently, one can imagine that the old house forms all the more charming a picture, and that the supposition is not unwarranted, may be seen from Mr. Railton's sketch in the last number of the *Illustrated London News*.

So the Blackwall Tunnel is to be proceeded with, and not remain merely a paper scheme, as I ventured to remark last week. I trust that it will be found more useful to Londoners generally than a study of the map of London, showing Blackwall opposite a bare stretch of Greenwich Marshes, would lead one to suppose, and that that long-suffering individual the London ratepayer, will not awaken one fine morning to find that he has expended £871,000, plus extras, in providing a means for facilitating the commercial operations of a few large manufacturers who have their works in the immediate neighbourhood of the proposed tunnel. Respecting the tenders, there is more than twenty shillings difference between £871,000 and £1,112,000 6s. 3d. (I thought it was "six and threepence three-farthings," but I see on referring again that "six-and-three" are the exact figures), so that the public will have another list of tenders enabling them to further badger the architectural profession in the matter of tenders, and propound once more the unanswerable question, "Why the difference?" They might, for a change, ask of the £1,112,000 6s. 3d. tender, "Why this thusness?" Not that I can myself do anything to solve the enigma, further than to suggest that there was a clause in the bill of quantities something like this, and under the heading "Excavating":—"Extra only: allows for navvies treading out of the way of earth-worms." Anyhow it is wonderful estimating. The gentleman who estimates so finely as to consider that to be just and fair the sum of 6s. 3d. should be retained in a gross amount of over a million sterling, ought to get shown some little respect by the estimating profession.

"An old complaint" crops up again. The sufferings of residents in parts of the West of London from the evil odours of brick-burning may be remembered, practically and concretely by some, theoretically and of hearsay by others. An inhabitant of Hammersmith writes to the *Standard* of the 28th complaining again of the stenches from the brick-fields of Wood-lane, Hammersmith, stating among other details, that although a mile away from the brick-fields he has been "awakened many times in the middle of the night by the horrible smell pervading the house throughout." "It seems useless," writes the correspondent, "to expect the Hammersmith vestry to take this matter up seriously, the brick-making interest being too strongly represented upon it." If this statement is wholly warranted, here is a matter that should receive the attention of the Local Government Board. It is something more than a nuisance when the inhabitants of a district like Hammersmith and Kensington have to put up with an evil because the vestry is so composed as to prevent the means of redress taking effect.

The carpenters being back to work, there is now some chance of getting roofs framed and floors fixed with something like despatch. Had the strike continued, and another severe winter set in, stopping the execution of brickwork, the result must have been deplorable to building artisans generally. What with a bad winter, and strikes and lock-outs, there has been a trying time for all workers of late, and I can only home that now matters will go on smoothly for the future, and a mild winter make up a little for the stress of last season. Works during the past wint were stopped for ten weeks, owing to fro which, I suppose, is a longer period than a within the memory of living architects. Al gether, taking stoppage by frosts and by strik and lock-outs, there must have been wonde fully little work done on many jobs since t time last year—about the beginning of th winter which, with its iron-bound country, i blocked Thames, and still, clear Arctic nigh will not quickly fade from our memories.

Goth

CHURCH FURNITURE.

A NEW Catalogue of Church Furniture issued by Messrs. West and Collier, Hambleden, Henley-on-Thames, Oxon, co taining designs of woodwork and furniture churches, vestries, and parish-rooms by A. Mardon Mowbray and other church arc tects. The number and variety of the furnit and articles—from altars to hassocks and kneelin pads—illustrated preclude any detailed account the publication. Church furniture, designed u ecclesiastical lines and truly architectural pr ciples, has made a considerable advance upon old-fashioned, ugly, and unchurchlike fittin which once were tolerated by the apathy a indifference of our forefathers. Indeed, 18th-century furniture of our churches reflec very accurately the apathetic churchmanship the age. Messrs. West and Collier's illustra catalogue gives us a pretty good idea of the p gress made in ecclesiastical fittings and acc sories of worship generally, executed in de pitch-pine, and oak.

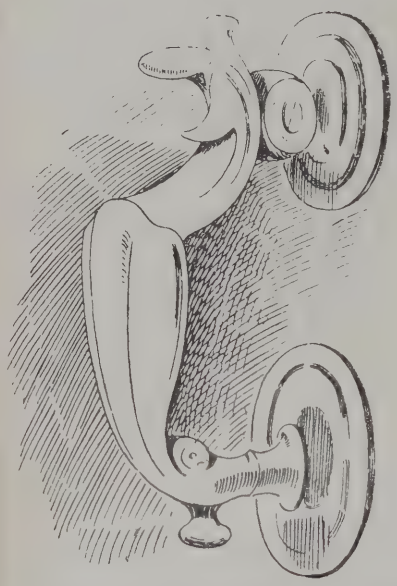
The designs for altars and their accompa ments, pages 1 to 4, show structures in th materials, the prices for the former rang from £11 in deal to £15 in oak. The fronts divided by moulded stiles into three comp ments, cusped, and carved with appropri ornaments. The tops measure 7ft. long 2ft. 6in. wide, and 3ft. 3in. in height, and shown with super-altars. Altar crosses pitch-pine and oak, plain or gilt and painted, candlesticks of the same materials, turned, shown on another page. Frontal presses for s of frontals of the colours of the seasons, presses for vestments in deal, pitch-pine, oak, altar book-rests, credences, both in table and bracket form, sedilia, choir-seats, pl and carved; kneeling and prayer desks, other sacrarium and chancel fittings are il trated by perspective sketches. Many of th are from good old examples and types, as in case of the kneeling and litany desks and lecte Several examples are given of nave seats w plain cut and chamfered and carved ends. Th are priced in deal at from 6s. 6d.; in pitch-p from 7s. 6d.; and in oak, from 9s. 6d. per foot up to 13s. to 16s. per foot. Open framing is suitable for mission churches, examples of wh are given. The catalogue includes other adjun to church worship, such as processional cros banners, hymn frames, &c. Several descripti of chairs, rush and wood seated, are illustra and some flattering testimonials from the cle are appended as to their quality and comf Messrs. West and Collier show two good exam of lych-gates. We can recommend their ca logue to architects who are designing or speci ing the furniture of churches, as well as to th of the clergy who are undertaking similar wo The illustrations are well drawn, and the pr affixed in each case.

The electric lighting committee of the Glas Town Council have, on the recommendation of William Thomson, decided to have a scheme electric lighting on the "low tension system," p pared for the city by Prof. A. B. W. Kennedy London.

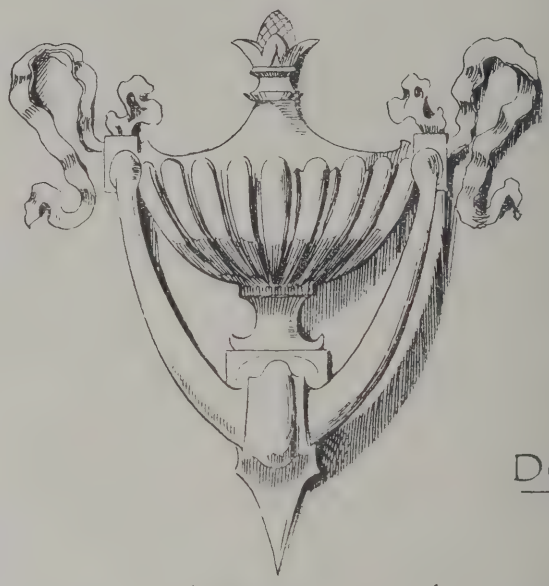
An arrangement has been arrived at by which Great Northern Railway will not again oppose Edward Watkin's Bill for his new trunk lin London from the North. Negotiations have b going on for some time between Sir E. Watkin Lord Colville of Culross, as chairman of the G Northern, and a definite agreement has b come to. A fiercer opposition than that of session is, however, threatened by the resident St. John's Wood, the present proposals being clared to be more objectionable than the scheme.

Sir Douglas Galton has been requested by Sindaco of Florence to investigate the sani condition of that city, and report what impro ments he would suggest.

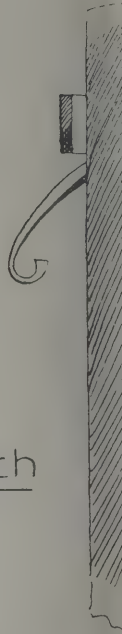
OLD · FIREPLACES · AND · DETAILS · CHIEFLY ·



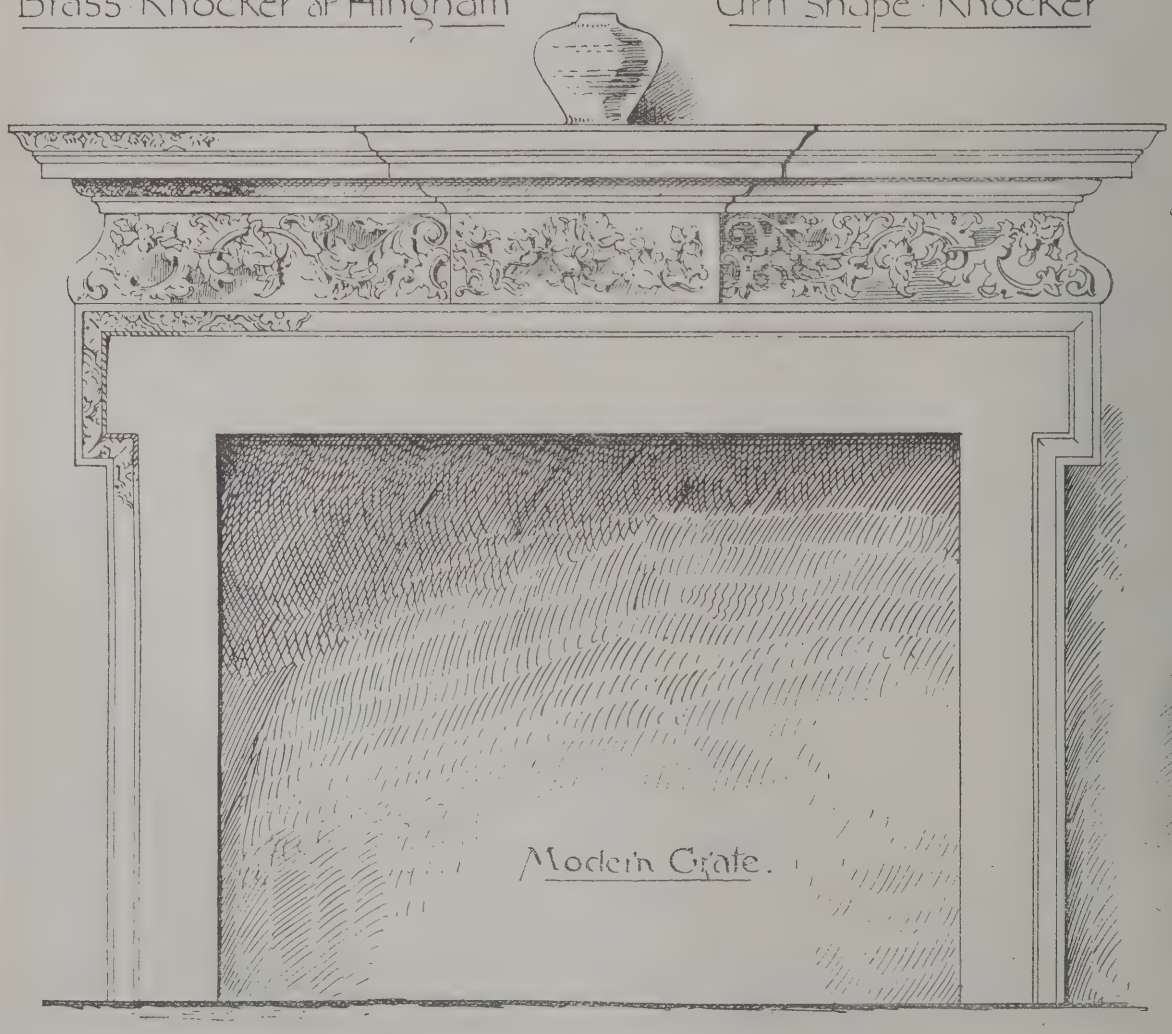
Brass Knocker at Hingham



Urn shape Knocker



Old
Door Latch



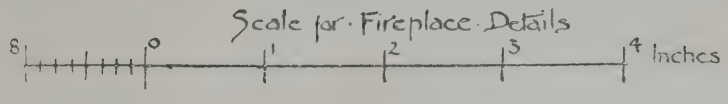


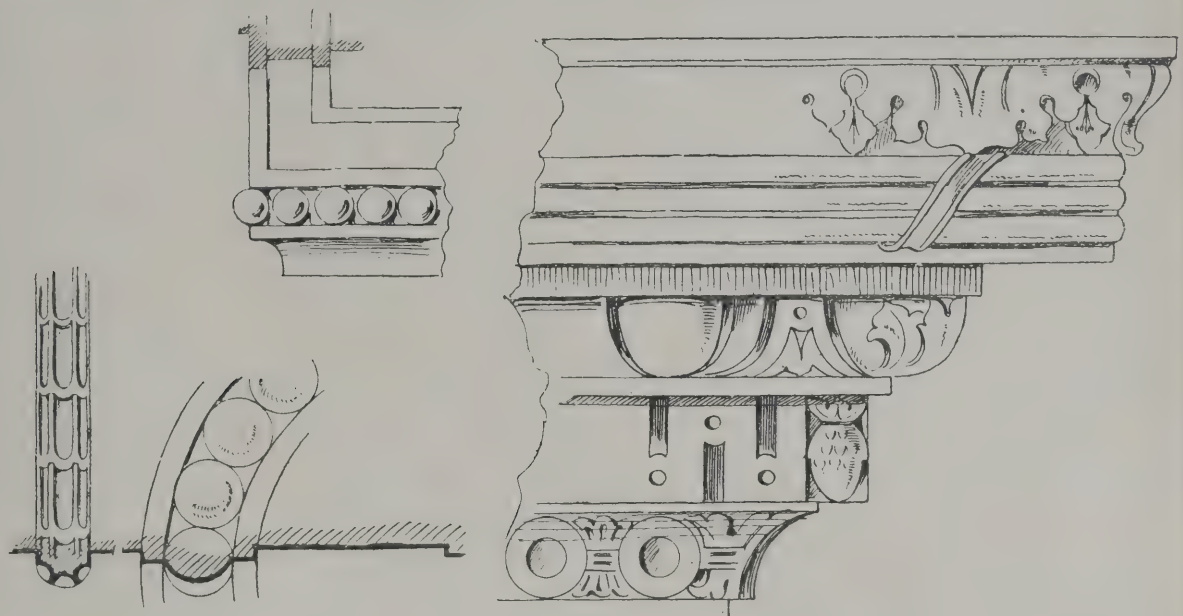
Two Manrels at Mildenhall

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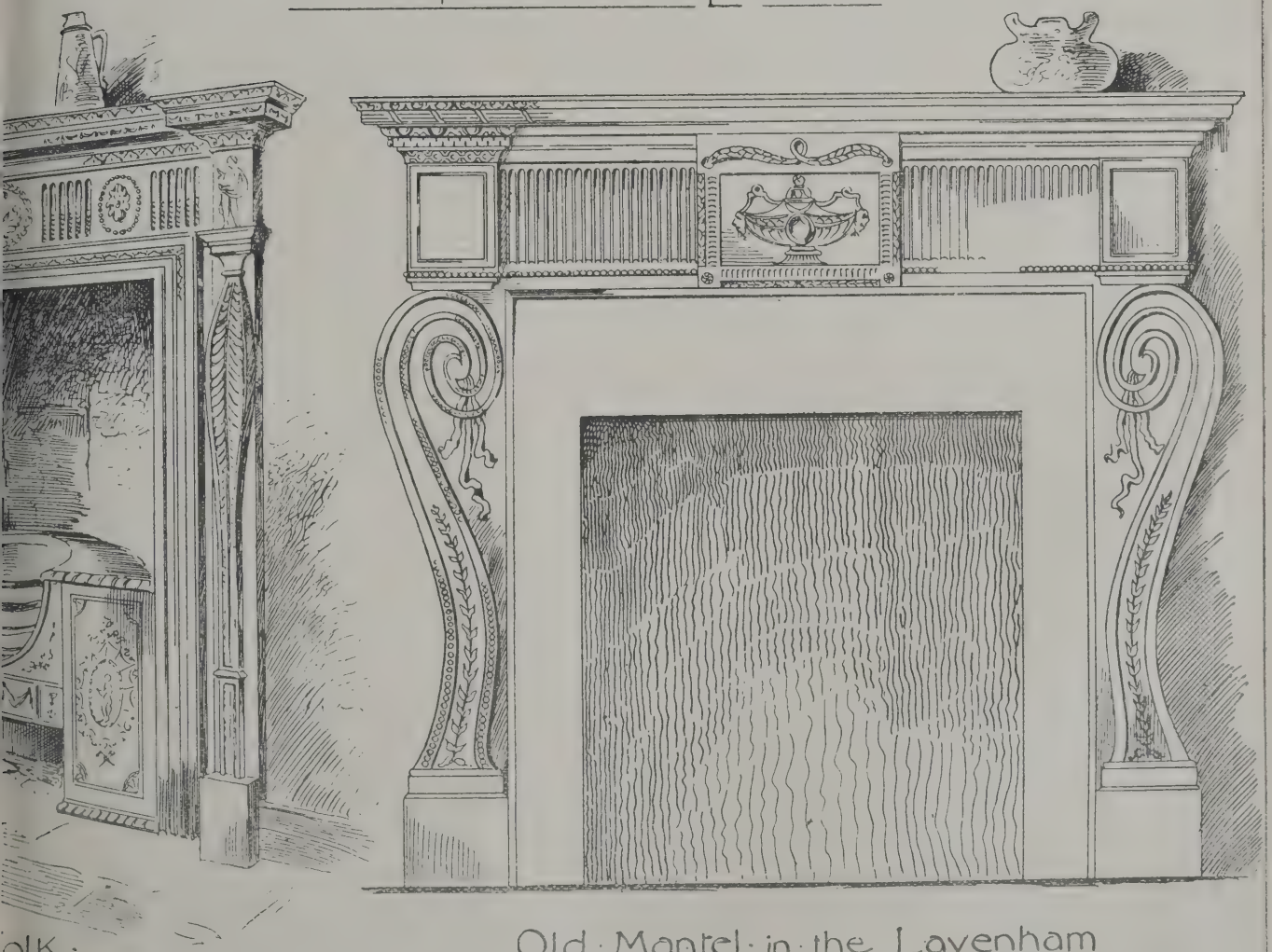
E. Hamellar del.

EAST-ANGLIA.





Details from Mantel at Lavenham.



Old Mantel in the Lavenham Grammar School

olk.

5 Feet

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ILLUSTRATIONS.

D BITS FROM NORMANDY.—OAK LAWN, CRAWLEY DOWN.—ELLINGTON CHURCH, HUNTS.—LANCASHIRE AND YORKSHIRE BANK PREMISES AT BURNLEY.—THE RED LION HOTEL AND SHOPS, LEYTONSTONE.—PARK LODGE, ALBERT GATE.—OLD EAST ANGLIAN FIREPLACES AND DETAILS.—PRINTERS' ALMSHOUSES, WOOD GREEN.

Our Illustrations.

D BITS OF NORMANDY: RUE DES MATELAS, ROUEN; RUE DE L'HOMME DE BOIS, HONFLEUR; RUE DE PARADIS, LISIEUX; RUE PORTE AU BERGER.

HESE pictures were taken by the Rev. Precentor ann, of Bristol Cathedral, in August, 1890, with Optimus" rapid rectilinear and wide angle nses. They were printed by the platinotype ocess (hot bath), and exhibited and medalled the Crystal Palace Photographic Exhibition st spring. Rouen and Caen have suffered uch from modern alterations, and it is now fficult to find in them (and especially in the ter) two or three old houses so grouped gether as to make a picture. Their fine urches, however, are well preserved. In sieux and Honfluer, whose commerce has not ade such advances, the antique appearance of the iddle Age Domestic architecture has been less rongly disturbed. There are still some very e specimens to be found in Lisieux, notably in e Rue aux Fèves, or Bean-street, where is the use of Francois I., of which the front is richly rved. This town is one of the most picturesque Europe, and abounds with subjects for the ist. No. 1 was taken in one of the oldest arters of Rouen, not generally visited by the rist, and close to the church of St. Vivien, ose spire appears in the picture. No. 2 resents a street in Honfleur, full of the quaint l timber structures which are still plentiful in t once thriving seaport—*e.g.*, in the Rue mbetta and Rue de Puits. No. 3 shows some l buildings in Lisieux, situated close to the thedral, at the junction of the Rue du Paradis th the Rue Grande. This view was taken on dull day with a very rapid plate; exposure out half a second. No. 4 is a corner bit in the lest quarter of Caen, just behind the church St. Pierre, and near the castle. There is now ry little of the kind to be found anywhere in s town. These interesting old gabled houses the 14th, 15th, and 16th centuries, with their ries projecting on corbels, and sometimes namented with elaborate carving, are fast disppearing out of the country. It is well that thful reminiscences of them should be preved, as they now so easily may be by the proved processes of photography.

OAK LAWN, CRAWLEY DOWN.

IS house has recently been erected at Crawley wn, East Grinstead, Sussex, for Mr. T. H. ckley. The accommodation on ground floor sists of dining-room, drawing-room, library, siness-room, kitchen and offices, and small conservatory; and the upper floors contain eight drooms, two dressing-rooms, bath-room, &c. cal sandstone from the quarries of Mr. R. Whitehead, of Old Paddockhurst, has been used for the dressings of entrance front, and Rowfant bricks are used throughout. The outer walls are hollow, and tile-hung on second floor. The heating of house is supplemented by the extension to various parts of the hot-water system of conservatory. Stables were also erected near the house, and both from the designs of Mr. T. Maclaren, 10, Great Queen-street, Westminster. Mr. Samuel Webber, Crawley Down, was the builder. The drawings reproduced herewith were exhibited in this year's Royal Academy.

ELLINGTON CHURCH, HUNTINGDONSHIRE.

ELLINGTON is a village in Huntingdonshire, five miles west of the town of Huntingdon. The church is chiefly of the Perpendicular period; but there are two good doors of Early English, or perhaps Very Early Decorated, date—one being the north door of nave, and the other the priest's door on the south side of the chancel. The chancel was rebuilt by Sir G. G. Scott in 1863, and is entirely modern, with the exception of a door just mentioned and a Perpendicular window on each side. The old chancel had also a two-light square-headed window on each side, and an east window of four lights, square-headed, all of Debased 18th-century character. The present east window is based upon fragments of an old one found in pulling down the walls. The roof of the old chancel was of flat pitch; but it had every indication of having been lowered at some time. The nave is very excellent Perpendicular work, with tall piers and moulded arches, a good clerestory, and a splendid oak roof with carved figures of angels with outstretched wings at the feet of the principals. There are similar roofs over the aisles. These roofs are in very bad condition, and will soon fall in if not attended to, and this in spite of a magnificent endowment left expressly "for the necessary repairing and ornamenting of the church"! There is, therefore, urgent necessity for the vicar and churchwardens and the Charity Commissioners to take the matter in hand without delay, as it would be a pity if so fine a church were allowed to go to ruin. A few years ago the churchwardens took off the lead from the south aisle roof, and replaced it with slate. The tower and spire are of Very Late Decorated character. The tower has good double belfry windows and a band of quatrefoils below the spire, the height to top of which is about 120ft. There are four bells, with the following inscriptions:—No. 1. Sancta Margareta ora pro nobis +. (in Gothic letters, and with a shield, England and France, quarterly). No. 2. Robt. Taylor, St. Neots, fecit 1788. Thos. Ladds and Henry Hanger, Ch. wardens. No. 3. R.D., 1699. No. 4. Vox Augustini sanctin aver Dei +. (in Gothic letters, and a shield with monogram TL. W.) The north porch is very good Perpendicular, with good spandrels over doorway, and the windows of north aisle are richer than those on south. The pulpit, seats, &c., are modern, but the altar is a good oak table of Renaissance design. In 1863, when the old chancel was pulled down, the ancient altar slab, with five crosses incised on it, was found under the floor. The font is a good octagonal one, with panelled sides and moulded stem and base, of the Perpendicular period. Bacon, in his "Liber Regis," gives the dedication as All Saints; but I have heard both Holy Trinity and St. Barnabas mentioned, and the village feast is kept on the first Sunday after Trinity. There are two Perpendicular high tombs, with panelled sides, in the churchyard on the south side of the church. There is a tradition that underneath are the remains of two old ladies, who bequeathed the endowment before mentioned of sixty acres of land for the repairs, &c., of the church.

JOHN LADDS.

LANCASHIRE AND YORKSHIRE BANK PREMISES AT BURNLEY.

MESSRS. BELL AND ROPER are the architects of these branch premises of the Lancashire and Yorkshire Bank at Burnley, of which we give back and front elevations, and ground-floor and first-floor plans.

THE RED LION HOTEL AND SHOPS, LEYTONSTONE.

THESE buildings, the property of Messrs. W. Brown and Son, of Leytonstone, are within three minutes' walk of Leytonstone Station, G.E.R., at the corner of the High-road and Harvey-road, the site lately occupied by the well-known Old Red Lion. They are designed in a Late Gothic style, freely treated, the idea being to keep as far as possible from the usual façades which buildings of this class so often present. The materials at the architect's disposal were malm facings relieved with dressings of Monk's Park Bath stone, and red granite shafts with grey plinths to the ground story. The buildings comprise, on the ground floor, a spacious bar, bar-parlour, kitchen to serve bar, stores, &c. Under the bar are the cellars, so designed that they can be kept at a uniform temperature winter and summer. On the first floor are a suite of Masonic rooms, consisting of lodge-room, ante-rooms, &c., and a banquet hall 31ft. by 58ft., which is also available for entertainments, when the lodge-room can be thrown open to the hall, giving an extra 775 superficial feet of floor space, besides which an end gallery is provided. The rest of the building is occupied by private apartments and the kitchens, of which there are two, both top-lighted, one 26ft. by 20ft., and a smaller one. Adjoining the Red Lion, four shops are in the course of erection, and stables for thirty horses are being proceeded with in the rear. The contract for the whole of the buildings is let to Mr. Holland, of Brunswick-road, Poplar, and the bar fittings to Messrs. W. H. Lascelles and Co., of Bunhill-row, E.C. The pewterers' work was executed in a most satisfactory manner by Messrs. Hayward, Tyler, and Co., of Whitecross-street, E.C. The whole of the buildings have been designed by Mr. W. D. Church, architect, of 12, South-place, Finsbury, E.C., who has superintended the carrying out of the work.

PARK LODGE.

SITUATED at Park-place, Hyde Park, it fronts the drive and Rotten Row, and overlooks the Serpentine and Tropical Gardens. The elevation is built of red brick and stone, with balconies for every floor. There are six self-contained suites, each occupying a complete floor, thereby securing the strictest privacy. Each suite comprises an excellent dining-room, with bay window and French casements, opening on to glass verandah, and overlooking the park; a bedroom, also in the front, with similar advantages; a third room, which can be fitted to meet the requirements of tenants, as boudoir, study, or extra bedroom; a bath-room, well lighted and ventilated, containing a douche as well as a Roman bath and lavatory, the whole with hot and cold water; w.c. fitted with latest sanitary porcelain apparatus. In the basement are private wine and coal cellars pertaining to each suite; also the housekeeper's apartments and kitchen, fitted with every requisite to enable the chef to supply the most recherché cuisine, with a service lift to each floor. The ceilings are panelled and painted throughout. Every contrivance known to modern club life is brought into requisition, such as telephone, electric light throughout and gas as an auxiliary, speaking-tubes, electric bells, asbestos stoves, handsome passenger hydraulic elevator, and every item of comfort to render these suites luxurious. Special precautions have been observed in the construction, rendering Park Lodge absolutely perfect from a sanitary standpoint and thoroughly secure in case of fire, there being a fire-escape ladder from the flat roof easily accessible. The works have been carried out by Mr. Frank Kirk, contractor, of Abingdon-street, Westminster, and under the superintendence and in accordance with the plans and elevations prepared by the architects, Messrs. Martin and Purchase, of 11, Queen Victoria-street, E.C.

EAST ANGLIAN FIREPLACES AND DETAILS.

THE three mantels delineated herewith are of excellent design, and all come from two quaint towns in East Anglia, neither of which is far from Bury St. Edmunds. Lavenham, with its old-world air, was once a prosperous town, and a centre of the wool trade; but that was in the 15th and 16th centuries. Though, however, it has lost its commercial importance, it has undoubtedly lost none of its picturesqueness, and still possesses much that sprung from its period of affluence, in the imposing stone and flint Church, the Market Cross, and the beautiful old half-timbered Guildhall and kindred buildings. Amongst the latter we may mention the Old Grammar School, which contains the Mantel shown on our illustrated page, and of which we give some details to larger scale. That, and the two fireplaces from Mildenhall, a town situated

in a district rich in historic memories, are much of the same date. There is some good carving on the frieze of the left-hand Mantel, while the centre one, drawn in perspective, owes much of its charm to the curiously-shaped pilasters. The two Knockers are both good pieces of detail, the one from Hingham possessing great beauty of outline. We commend both designs to the manufacturers of modern door furniture. We also give a sketch of a quaint old Thumb Latch.

COMPETITIONS.

Manchester Royal Infirmary.—Although plans have been invited in competition for the reconstruction and enlargement of the Royal Infirmary on the site now occupied by that institution, it is by no means certain that the work will be carried out. There is a strong feeling in Manchester and Salford that it would be unwise to occupy with buildings the whole of the ground now vacant, and that a far preferable plan would be to remove the hospital to a less confined space outside the city. At a meeting held on Monday of the board of management, a memorial was received from an influential body of the trustees, urging that whilst it is important that the infirmary should be retained on its present site in the utmost state of efficiency, any extension of the accommodation thereon is very undesirable. It was unanimously agreed to reply that extra accommodation was pressingly required, and adding:—"On the 1st January next the Board expect to receive from the selected architects plans for the additional accommodation proposed. Should the Board approve of any of the designs, they venture to hope the memorialists will give to such plans their impartial consideration when submitted to the judgment of the trustees, in fulfilment of the pledge given by the chairman at the annual meeting in July last."

CHIPS.

The Wesleyan chapel at Penketh, near Warrington, was reopened last week after enlargement, including a new front brought forward to the high road, and new seats, platform, and vestries. Mr. William Owen, of Warrington, was the architect, and Mr. R. W. Collin, of the same town, carried out the works at a cost of £1,100.

The St. Agnes' Industrial Home, which is in course of erection at Knowle, near Bristol, from plans by the late Mr. John D. Sedding, was visited by the Duke of Edinburgh on Saturday. It is intended to provide additional accommodation for the work carried on by the Sisters of St. Raphael's, Bristol. In the new home accommodation will be provided for 60 children, and the structure will afford a home for the Sisters and a laundry for poor women. The buildings will stand in grounds four acres in extent, and will be in the Queen Anne style. The cost will be about £12,000.

Classes under the auspices of the District Council for Edinburgh and the East of Scotland for the Education of Plumbers were inaugurated at Galashiels on Saturday, when an address on "Modern Sanitation" was delivered in the Burgh Hall by Mr. James Thomson, C.E., Edinburgh.

On Saturday a memorial stone was laid in the domestic chapel connected with the house now being erected at Westfield, St. John's, Wakefield, as a residence for the Bishop of the Diocese. The cost of the bishop's house will be nearly £10,000. The plans were prepared by Mr. William White, F.S.A., Wimpole-street, London, W., and the contract for the whole of the work was let to Messrs. Gould and Stevenson, of Hunslet, Leeds, who are carrying it out under the superintendence of Mr. Sentance, of London, the clerk of works. The domestic chapel, which is under the examination hall, and adjoining the bishop's library, wil accommodate about 40 worshippers.

The new Roman Catholic Church of St. Mary, at Paisley, was consecrated on Sunday week. The building is in the Gothic style, from plans by Messrs. Pugin and Pugin. It is 120ft. long, 50ft. broad, and 60ft. high, and accommodates about 900 persons. The cost has been about £5,000.

A new town hall, with other buildings attached, is to be erected, at the cost of £60,000, by the vestry of St. Saviour's, Southwark.

Miss Eugenie Sellars will deliver a lecture, by permission of the Committee of Council on Education, in the theatre of the South Kensington Museum on Nov. 11, on "The Greek Theatre," this being accompanied by limelight illustrations.

The partnership heretofore subsisting between Messrs. Mills and Jones, of Regent-street, W., architects and surveyors, has been dissolved.

Building Intelligence.

Alnwickhill, N.B.—A new Industrial Home for Fallen Women was formally opened last week. The new building is designed by Mr. R. Wilson, Queen-street, Edinburgh. The main building is two stories in height, and has a frontage of 104ft.; but running backward at each end, and also in the centre, are one-story buildings forming an ⊓ on plan. The ground floor contains the administrative departments of the home, whilst the floor above consists chiefly of the dormitories. Extending backwards from the right-hand side of the building are the washing-house, laundry, drying rooms; to the left are the dining-hall, sewing-room, &c.; whilst in the centre behind are the kitchen and other offices. The exterior is in a very plain and simple style. The cost is £5,000.

Bootle.—The ceremony of opening the new police building in Oriel-road, Bootle, took place on Friday. Mr. C. J. Anderson was the architect. The contractors were Messrs. Woods and Son, and Mr. Worrall was the clerk of the works. The plan of the building is divided into two parts, the administrative department, which includes the two courts, magistrates' room, offices, and cells, and a living department, containing the housekeeper's rooms, police dormitories, day-room, and laundry. The large court occupies an almost central position in the building on the first floor, and is approached by a large stone staircase from the public entrance. The fittings of this court are executed in oak, dull polished, panelled, and moulded. The chief constable's office is placed on the ground floor. Adjoining the police entrance are the charge office detention-room, and from thence corridors lead to the cells and airing yard. The back of the building contains the housekeeper's rooms and kitchen, which are approached by a separate entrance and staircase from the drill-yard, as are also the three police dormitories, day-room, and laundry. The front elevation, facing Oriel-road, is of Classic design, and is faced with Minera stone. The north elevation is faced with buff-facing bricks, and all the other elevations are faced with selected common brick and strings and arches of Ruabon brick.

Bristol.—The Duke of Edinburgh on Saturday opened the new wing of the Bristol General Hospital, which has been erected at a cost of £25,000. The new wing has been erected on the north and north-east sides of the hospital, and the three new wards front Bathurst Basin. On the first floor there are two new wards for male patients, one containing thirteen beds and the other eight. On the second floor is a women's ward containing thirteen beds, and four smaller rooms for female patients. Another important addition to the buildings attached to the hospital is the Nurses' Home (for forty nurses), which fronts Guinea street. It consists of first, second, and third floors, and provides a room for each nurse. It also contains a common room and store-room for boxes. The additions have been built of stone to correspond with the older portion of the building. Messrs. Crisp and Oatley, of Bristol, are the architects, and the builders are Messrs. Brock and Son, of St. Philip's Marsh, Mr. Alfred Pritchard having acted as clerk of the works.

Denton.—St. Mary's Church, which was consecrated on the 22nd inst., has been erected from the design of Mr. J. P. Pritchett, of Darlington, in the Early English style. It comprises nave, 38ft. by 18ft.; chancel, 22ft. 6in. by 12ft.; vestry at west end, 15ft. by 6ft.; organ chamber, 9ft. by 8ft.; and south porch, 8ft. by 6ft. Externally the walls are built of Houghton Bank stone, with dressings of the same. Internally the walls are lined with buff bricks from Normanby brickyard, with stone dressings to jambs and arches. The roofs are of pitch pine, unvarnished, and covered with brown tiles from Ruabon, laid on felt. The floors are of wood blocks in the seats, and mosaic tiles in the passages and chancel. The fixed seats accommodate 100 adults. The total cost has been £1,500.

Drumcondra. — Last Monday Archbishop Walsh laid the foundation-stone of a new wing in connection with St. Patrick's College, Drumcondra. The existing college buildings were erected in 1884, and were designed by the architect to the college, Mr. John L. Robinson, A.R.H.A. They comprised large study classrooms, recreation rooms, library, kit refectories, and a large dormitory to accor date 75 students It was soon found nece to increase the accommodation, and plans prepared in 1887 for a new wing, the erecti which was suspended until the present time is to be erected in continuation of the exi building, and at right angles to it. The b ing is Classic in treatment, with a rusti basement and chiselled plinth. The upper are built of Kingscourt pressed red bricks, granite stringcourse, and massive coved course. Over the back stairs will be a camp 112ft. high, to carry the college bell and c The works are being carried out by Alde Toole.

Edinburgh.—The managers of the Infirmary have under consideration a pro extension of the building towards Lauriston Messrs. Sydney Mitchell and Wilson, archit of Edinburgh, have submitted a plan of the posed extensions to the managers, the features of which are the removal of the lau to the most northerly part of the new site erection of a surgical pavilion to the west c present surgical pavilions, and the erection large pavilion or pavilions on the rest of the site. The object aimed at is the provisi about 200 new beds. The treasurer estir the probable cost of the extensions—tha to say, site, new buildings, and furnishing £73,500.

Newcastle-on-Tyne.—The new R.C. ch of St. Michael and Holy Angels in Westmor road was solemnly opened on Wednesday. church has been erected from designs by, under the superintendence of, Messrs. D Hansom, and Dunn, of Newcastle, and is Decorated in style. Every window in the ch is varied in the design of its tracery, and octagonal lantern, with its eight window surmounted with battlements and carved en ments. The height of this lantern is 80ft. it is placed at the intersection of the nave transept roofs. In a niche rising from th of the east window in the apex of the ga placed a figure of St. Michael. Both north south transepts, which terminate the aisles utilised as chapels, the organ being placed o screen in the south transept. The roofs o church throughout are of pitch pine, mo and panelled, at the height of 50ft., with nices enriched with tracery and carving. lantern is open to the church, 73ft. abov level of the nave floor, the windows being with rich grisaille glass, and the ceiling rated with gold and colour. The contrac Mr. L. Gaby, of Gosforth; the internal stone was supplied by Mr. Jos. Bladwe Bath; the mosaic altar frontal has been exe by Messrs. Powell, of London, from car prepared by Mr. Jos. Pippet. Mr. Ri Robinson has acted as clerk of the works. total interior length of the church is 134ft. the width 48ft., the seating accommodation for about 700. The parquet oak block flo is by the Acme Woodpaving Company, Lo The church will cost £20,000.

Revesby. — Revesby Church, Lincoln was reopened on Tuesday, the 20th inst. new church consists of a western tower and a nave and north aisle of the same leng chancel with organ-chamber and vestry north side, and a south porch, all designed style prevalent in the latter half of the century. The spire, at present not built, rise from within a richly traceried parapet angle pinnacles, and will form a conspi object over the trees for a considerable dist The walls externally are entirely of An stone, and the internal dressings of the stone; but the internal walling is of red lington stone. The contractors are Messrs. Knight, and Co., of Sleaford. Mr. Wych has been the manager for the contractors the whole work has been carried out und supervision of Mr. T. Carse, clerk of works, the designs of Mr. C. Hodgson Fowler, F.S.A., of Durham.

On Saturday afternoon Mr. John Morle veiled a bronze statue of the late John B erected by public subscription, in the Town Square, Rochdale. The statue is the work o Hamo Thornycroft, R.A. It is 9ft. high stands on a granite pedestal 11ft. high. The the statue itself is about £2,000.

Engineering Notes.

LASGOW BRIDGE.—The town council of Glas- at their meeting on Monday received a es of important recommendations as to the nstruction of Glasgow Bridge, which they e recently been informed is urgently neces- . A sub-committee recommended that the bridge be constructed of steel, with cylin- al foundations and facings of granite; that ave two piers resting in the river; that it be wide, and that Mr. George Miller Cunning- ie, C.E., Edinburgh, be requested to provide liamentary plans and specifications for a porary service bridge, and also for a per- ient bridge. After a discussion, the motion eeing to the appointment of Mr. Cunning- ie as engineer was carried by 24 votes to 13 es.

CHITECTURAL & ARCHÆOLOGICAL SOCIETIES.

A. LYRIC CLUB.—The fourth season of this was inaugurated by a smoking concert held the head-quarters, Mona Hotel, Covent den, on the 23rd inst The programme anged by the president, Mr. A. C. Bulmer th, was most successfully carried out, Messrs. th, Hunter, Smith, Perks, and Captain tson contributing songs, and Messrs. F. T. W. ler and Perks recitations. Mr. C. D. Imhof in proved a most efficient accompanist. The t concert takes place on November 20, and l be arranged by Mr. Earle, who promises a formance by the A.A. string band and other cial items.

LASGOW INSTITUTE OF ARCHITECTS. — The nty-third annual meeting of the Glasgow titute of Architects was held on the 21st inst., . William Leiper, president, in the chair. e report of the council, submitted by Mr. J. Maclean, secretary, stated that two new mbers had been admitted during the year. e number of ordinary members on the roll v stood at forty-nine, and there were eight norary members, making fifty-seven in all. In ving the adoption of the report, the chairman pressed regret that the proposal that the titute should have a home of its own had not nd favour with the majority of the members, ; he did not despair of the suggestion being adopted. The most important architectural ject in Glasgow at present was the new Fine t Gallery, Museum, and Music Hall, and he nsidered that a School of Design under the ne roof would be an immense advantage. ferring to the growing use of red stone and racotta in street buildings, he said this was her remarkable in a city where formerly only at was originally white stone was tolerated. doubt the fact that red stone resisted more ectually the deleterious results of the town nosphere laden with acids and smoke was the son for its more general adoption. He ought, however, that some better method of eserving white stone should be resorted to than inting, and remarked that in Paris jets of am were used once a year to clean out the t and dirt which had gathered on the fronts of e buildings. The report was adopted.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.— ne inaugural meeting of the present session of e Institute will be held on Monday evening xt, the 2nd November, 1891, when the opening dress will be delivered by Mr. J. Macvicar nderson, president. The programme for the ssion is:—November 16, "Modern Egyptian uildings," by Mr. H. Favarger, of Cairo; ovember 30, "Sculpture and Sculptors' ethods"; December 14, "American Theatres," Mr. Horace Townsend, of New York; nuary 18, award of prizes and student- ips; January 25, presidential address to idents, presentation of prizes; February 8, Revision of the Building Acts of the etropolis"; February 22, "Stained Glass"; arch 7, election of a Royal gold medallist; arch 21, "Byzantine Art," by Professor itchison, A.R.A., vice-president; April 4, Wrought-Iron Work: the Renaissance eriod," by Mr. J. Starkie Gardner; ay 2, report of council; May 16, "The 1891 ongress of Hygiene and Demography"; ay 30, "Castings in Metal"; June 13, election council; June 27, presidential address on esenting the Royal gold medal.

TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, 332, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

Cheques and Post-office Orders to be made payable to J. PASSMORE EDWARDS.

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Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page advertisements and alterations in serial advertisements must reach the office by Tuesday Morning to secure insertion.

NOTICE.

Bound volumes should be ordered early (price Twelve Shillings each), as only a limited number are done up. A few bound volumes of Vols. XL., XLI., XLVI., XLIX., L., LI., LIII., LIV., LVIII., LIX., and LX. may still be had, price Twelve Shillings; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

RECEIVED.—C. H. H.—A. E. C.—W. B. F.—D. L. Co. and Co.—C. M. and Co.—G. and T. Earle.—T. and R. Boote.—B. H. and Co.—E. C.—W. F. S.—R. T. Co.—G. B.—S. A.—J. and J.—A. W.—D. and Co.—S. and Co.—D. and C.—B. of B.—N. L. B.—H. B. and Co.—E. H.—B. S. Co.

G. W. F. (We know of no really good book on the subject. You might ask Batsford, 52, High Holborn.)

Correspondence.

THE VICTORIAN ARCHITECTS' REGISTRATION BILL.

To the Editor of the BUILDING NEWS.

SIR,—The draft which you published last week, of the Victorian Architects' Registration Bill, and which seems to have every prospect of shortly becoming law, must have attracted the attention of a very large circle of readers, who will doubtless have noticed how closely the English Architects' Registration Bill has been followed. A General Council is to be formed, as is proposed in the English Bill, and is to be constituted upon similar lines, though much smaller—almost too small for efficient working, one would be inclined to think—and its duties are to be the same. No such officer as a registrar is mentioned, but one would obviously be needed. The qualifications of those who are to be entitled to Registration, both on the passing of the Bill and subsequently, are clearly taken from the English Bill, with certain modifications to suit Colonial practice, the right to Registration of all *bonâ-fide* architects practising at the time of the passing of the Bill being carefully recognised, as it is in the English measure.

Similarly, all the other clauses are founded upon the excellent draft Bill of our English Registration Act Committee, save one, which here it would be scarcely wise to introduce—that which fixes the rate of payment which architects in the Colony may demand.

Now, Sir, this shows two things. Firstly, it is found to be as necessary in our newest colonies as in the mother country, that such a Bill should soon be made law; and, secondly, it is accepted that the best model for such a Bill, even in so distant a part of the world as Victoria, is that of the English Committee. This must be most encouraging to the English workers, for a Bill which suits the needs of those who are far away, with but slight and unimportant modification, cannot be far from the right measure for those for whom it was intended.—I am, &c.,

REGISTRATIONIST.

Intercommunication.

QUESTIONS.

[10653.]—**Wainscotting.**—Some little time ago a surveyor issued quantities for certain works, in which he specified some wainscotting, but never mentioned "oak." The builder being a North-country man, said that in Yorkshire and various other parts wainscotting was done in pitch-pine and other woods (the term "wainscotting" being a general term for dado round a room or entrance hall). The question is this: Is the builder compelled to put the same in wainscot oak?—WAINSCOT.

[10654.]—**Frontage.**—Can any of your readers help me in the following matter? I own property in the main street, the building is set back from the street, say, ten yards. Many years ago the frontage was occupied as a garden. At that time the owner of an adjoining property purchased the right to restrain the erection of any building higher than, say, 5ft. For a consideration he has allowed the adjoining owner to build upon his front land, and he agreed to give me the same privilege, which agreement he (a lawyer) now refuses to carry out. What I desire to know is, are there any precedents to show that when the character of the neighbourhood has entirely changed, as in this case, I should be justified in fighting an action to sustain my right to erect a building similar to my neigbour?—AN EX-BUILDER.

[10655.]—**Mills.**—Where could I get any information on mills and their construction?—J. W. C.

[10656.]—**Model Farming.**—Can any reader inform me of a recently erected set of well arranged private farm buildings on a fairly extensive scale that might be seen at no very great distance from London?—A BUCOLIC READER.

REPLIES.

[10634.]—**Brick as a Building Material.**—I think I read "Brickwork" aright; but he overlooks the fact that bricks never have a drip-in on the top bed as stones so frequently have, particularly at the ends, where they so often slope or slant inwards and downwards towards the upright joints. If stones were always dressed or selected for, at least, the width of a brick, quite level or "full to the square" from the face—that is, with a slight drip-out on the top bed, the whole length, there would be fewer damp stone walls Brick joints seldom take wet unless the mortar is bad or partly omitted, or that the bricks are dusty on the surface when laid. Bad bricks no doubt absorb and pass moisture through, especially if in exposed places facing south and west. "Another Ignoramus" in a letter to the "B. N.," 16th inst., advocates hollow brick walls, and adds that with "stone throughs" (thorough bonds), when "left level or dripping down," the wet will follow them as he has noticed it. He is quite right as to that, but the joints need not be 1in higher inside than outside, a slight drip-out towards the outer face will do if continued all along. Other stones as well as "throughs" having a drip or fall-in, admit wet as freely if not quite as directly. Perhaps the worst are edgers or "looking-glasses."—M. M.

[10640.]—**Sea-Sand in Mortar.**—I fear I do not read "Brickwork" aright as to "hygrometric" and "atmospheric" moisture being "attracted" by sea-sand. If any moisture comes in contact with the saline matter on the surface or impregnating sea sand, it will absorb it, and, if "atmospheric," condense it, so as to cause damp. In Belfast—some years ago, at least—the best building sand was got on Hollywood Beach between high and low water, so that the pits were covered and filled in by each tide. The precaution taken when using this sand for walling or plastering was to spread a thin layer of the sand on the ground in proportion to the quantity of lime and sand to be then prepared, and to spread on the layer of sand also a thin layer of lime (unslaked) in proportion to the quantity to be prepared, and to throw just as much water on the lime as required to slake it, and so on, adding other layers of sand and lime until all is used, finishing by a layer of sand at top and sides, so as to inclose the lime, the heat from which in slaking dries and kills the saline matter of the sand. Walling with bricks or sandstone seldom, if ever, shows damp after this, and plastering only shows a hoar frost (Epsom salts) on the surface after some months, and when removed does not show again, or any other bad effect.—M. M.

[10642.]—**Strong Room.**—I am much obliged to Mr. Robert Phillips for information concerning above, but should like to be enlightened on one or two points: (1) If air-bricks close to floor inside and discharging outside under the arch skewback, are always successful, why is it necessary to provide an extraction flue!—which, I presume, would be in the centre of ceiling or roof. (2) What danger is there from explosions by having gas jets inside, if plenty of ventilation is provided as above? And could not the stopcock on gas supply be outside, with some arrangement for shutting off by closing the door? By using a lamp with flexible tape it wou'd be necessary to remove same every time anyone went to the strong room, and this would be very troublesome, as I want the iron door to be open all day, and to only use the ventilating gate during such time.—F.

[10644.]—**Joists.**—I am much obliged to Mr. W. Stevenson for his interesting reply to my query. I shall be very glad if he will give a few notes on what he says has far more to do with the strength of a joist than has the pattern of grain on the end section—viz., quality, knots, and twisted grain—so that I may know a good joist when I see one.—SAP.

Legal.

ARCHITECTS AS AGENTS.

Of course, speaking generally, the authority of an architect who is employed by a building owner in the carrying out of certain work, is coextensive with the scope and purpose of that employment according to the usual rules of the law of agency. But this implied authority is almost always limited by the written contract under which the work is to be completed, so that in any given case the contents of this contract have to be considered. Nor can vague rules of usage and custom amongst architects be allowed to have any weight when the limits of authority as agreed are set down in writing. In other words, the contract must be taken as a whole, and the architect's powers must be found within the four corners of that document, except so far as they follow by necessary implication from the works upon which he is employed. An architect is obviously the general agent of the building owner in all matters essential to the designing, obtaining tenders for, and superintending the building or works upon which he is employed. All this naturally flows from the very object and nature of an architect's business and profession, and follows at once on his employment.

Still, these general powers are liable to be governed by the written contract and often by the facts of the case. The architect is the agent of the owner in making drawings; but as he is bound to do them properly and accurately, he cannot get over omissions in them by ordering these things to be done as extras, under his general power to order extras, for this would only apply when such were really necessary. So, again, if his drawings turn out to be impracticable, and expense has to be incurred in making them practicable, he cannot throw this upon the owner under cover of an extra, even when the contract allows him to order extras. When an architect is merely asked by the building owner to get out plans for a proposed building, he is really only engaged so far as a draughtsman, and he has as yet no authority as agent arising from his position as architect. Until further instructed, he is not empowered to get in estimates or tenders on behalf of the owner, nor, of course, can he in any way negotiate for advances upon the suggested building. Certainly the scope of his agency may afterwards be so widened as to include these and other matters; but until this happens, an architect who went on so fast would do it at his own risk, and would need the subsequent ratification of his client.

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Note.—All questions for reply in this column must be headed "Building News," and must reach my offices, as above, by *Tuesday* morning to insure answer same week.

Bedford.—Repairs.—If the landlord through his authorised agent instructed you to do the building work, he is of course liable to pay for it. But that is more a question of fact than of law, and will have to be decided upon the evidence if the case goes for trial. If the clause you copy from your lease is the landlord's covenant to repair, then he is legally liable; but if it is a lessee's covenant, that would not be so, and the answer would depend upon the facts as above stated.

S.—Stamp.—Yes. A sixpenny adhesive postage stamp, or several postage stamps amounting together to sixpence, can be used upon an agreement, and will do as well as the 6d. impressed stamp. But the adhesive stamp or stamps must be affixed at the time of signing, and it or they must be properly cancelled by the party first signing, writing his name or initials over the stamp or stamps, with the date of so doing. Adhesive stamps cannot be put on after signing, but the 6d. impressed stamp can be done any time within 14 days from date of agreement.

Anxious.—Lodger.—You can only distrain properly upon the things left in your possession for all rent in arrear and so sell them. But there is legally no power of sale in such cases without a distress; though, of course, you can sell them if you like, and take the risk, if any, of his some day turning up and claiming the goods.

The carpenters' shop recently opened at King Henry VIII. School, Coventry, is becoming, the local newspapers state, very popular amongst the boys. The building in which the instruction is given is a wooden structure at the rear of the school, 30ft. by 18ft., and accommodating twenty students. The instruction is given by Mr. Wright, foreman at Messrs. R. Smyth and Co.'s cabinet makers. The students have already made a number of articles. Their first business was to construct for themselves carpenter's benches. They prove themselves handy in the use of tools.

LEGAL INTELLIGENCE.

The Serious Charge against an Architect.—Arthur Muckleston Leach, 38, architect, and Henry Cone, 27, of Bermondsey, were again charged at Staines, on Monday, with conspiring with a man named Adams to defraud the Liverpool and London and Globe Insurance Company of £550. Further evidence having been given, the prisoners were again remanded.

Alleged Frauds by a Bankrupt Builder.—A Special Court was held by the Newmarket (Cambs.) Bench on Thursday, to further hear the charges against Francis Johnson, builder, Fordham, for that he, being a bankrupt, did not fully discover to the trustee administering his estate all his personal estate, to wit, a debt of £28 10s. due to him, and also three ponies, with intent to defraud his creditors, and unlawfully did not deliver up to the same certain stock-in-trade in his custody at Fordham and elsewhere, and with concealing the same, and also did omit in his statement relating to his affairs the debt and stock-in-trade, and did mutilate and falsify a ledger relating to his property, or was privy to its being done, and did make a false entry in his ledger and cash account. James Johnson, builder, Soham, was summoned for aiding and abetting his brother in the above offences. A further summons was taken out against defendant, to wit, omitting in his accounts a sum of £112 due to him, and also a sum of £20 1s. 11d. Fresh evidence was given for the prosecution, and the case was adjourned till Monday next, the 2nd Nov.

An Appeal Against an Award.—Smith v. Robson.—(County Court, Westminster, Monday, Oct. 26th.)—This was a case of a somewhat unusual character, being an appeal against an award made by Messrs. Walker, Allport, and Tidman—three surveyors under the Metropolitan Building Act—as arbitrators in a matter between the parties to the appeal. Plaintiff and defendant are owners of adjoining property in Marshall-street, Regent-street, and the case arose out of a dispute concerning the condition of the party-wall, which, on the plaintiff pulling down his houses in order to rebuild, he claimed to be in such an insecure state as to need rebuilding, in which event the cost would be borne by the respective owners. Defendant claimed that the wall did not need rebuilding, but only repairing, and also claimed that the cost of such repairs should be borne by plaintiff, as the Act directs; hence the dispute. Defendant appointed Mr. Allport as his surveyor, and served a notice upon the plaintiff to make a similar appointment, which, plaintiff failing to do, Mr. Tidman was appointed by the defendant under sub-section 9 of the Act, Mr. Robt. Walker, district surveyor for the Strand District, being eventually appointed as a third surveyor. These arbitrators decided that it was not necessary to pull down the wall, but that certain necessary repairs should be carried out with all despatch, and their award was made on the 27th of July. Against this, the surveyor's fees and the amount of solicitor's charges, the appeal was made. In his opening statement the counsel for the plaintiff suggested that an amount of hostility towards his client had been shown by the arbitrators, which suggestion was warmly commented upon by defendant's counsel, who proceeded to state that, as a matter of fact, the decision of the arbitrators was that plaintiff should do exactly what in his party-wall notice to defendant he had professed to be anxious to do. "In effect," said the counsel, "the award says: 'You need not pull down the wall, but you must do the work which you said in your notice you wanted to do.'" But this was really an attempt to set aside an award because of the alleged excessive fees of the arbitrators, a proceeding which he ventured to think would not be permitted. He asked his Honour to find that in this case there was nothing bad in law, and nothing to show that these gentlemen had acted otherwise than men of honour would act. Plaintiff's counsel submitted that the surveyors had acted on a mistaken view of their duties by ordering that the plaintiff should do this work at his own expense. The wall was defendant's, not plaintiff's. He submitted, therefore, that the expense should be apportioned between the two, or else that the award should be set aside. It was no award at all, but altogether a one-sided affair, and Mr. Allport, who seemed to be the leading spirit, had acted in a manner hostile to his client. He hoped his Honour would decide that the charges should be borne equally by both parties. The Judge decided that the award must stand, but directed the solicitor's charges of three guineas be struck out. There was absolutely no evidence, he said, on which to base a charge of hostility against the arbitrators, and it was a very serious thing to make such a statement against gentlemen of the professional standing and character of the arbitrators. Defendant's counsel having applied for costs, the Judge decided to allow taxed costs.

Apportionment of Paving Expenses.—The Queen v. Marsham.—(Court of Appeal, Oct. 28, before the Lord Chancellor, the Master of the Rolls, Lord Justice Fry, and Lord Justice Lopes.) This was an appeal from the decision of Mr. Ju Denman and Mr. Justice Wills. Adelaide- Brockley, being in need of paving and repai the works were done by the Lewisham Di Board of Works, and the expenses were apporti by the board among the adjoining owners u Section 77 of the Metropolis Management Act, The actual cost of the works was £737 9s. 3d. the amount apportioned to the New Land Dev ment Association was £54 8s. 6d. £29 18s. 6 this sum having been paid by a former ow there remained £24 10s. due, and the Boa Works proceeded to recover this sum from the ciation summarily as the owners of certain h in the road. The police magistrate dec to go into the question of or receive dence as to the actual expenses incurre the board in paving and repairing the road o ground that he had no jurisdiction to go behin apportionment made by the board. The ass tion thereupon applied for a mandamus to co the magistrate to entertain the question a receive the evidence. The Divisional Court re the application, but a rule nisi was granted by Justice Bowen and Lord Justice Kay in the of Appeal, and this now came on for hearing. Crump, Q.C., and Mr. Bramwell Davis sh cause against the rule. Mr. Horace Kent, in port of the rule, contended that the actual ex of the work was a subject to be determined b magistrate. He referred to sections 225 and 2 18 and 19 Vict. c. 120, "Nesbitt *v.* Green Board of Works," "Mile End Vestry *v.* W chapel Union," and "Poplar Board of Wor Love." The Court unanimously made the rul a mandamus absolute.

Is a Builder's Office a Structure?—Parte the London County Council.—In Queen's Bench Division, on Wednesday, b Mr. Justice Matthew and Mr. Justice A. L. Sm an application was made on the part of the Lo County Council to raise a question as to what be considered a "structure or erection" w cannot be set up without their authority unde Act 45 Vict. c. 14, s. 13. There is an excep from the enactment as to builders' tempo offices, set up only to be used during the erecti any house or building. In the present case, H ever, a builder had set up at his own residen wooden structure on iron wheels, to be by him as a "builder's office," and for the purpose of any house or b ing about to be or being erected. A s mons was taken out against him before Bros, the police magistrate at Clerkenwell; bu refused to convict, conceiving the case not within the enactment, as the structure w "builder's office," and he refused to state a to raise the question. Mr. Avory, upon the pa the London County Council, moved for a rule mandamus to the magistrate to state a case to the question, submitting that the magistrate mistaken in his view, as the exception only ap to such structures as were used as builder's o temporarily and during the erection of a hou building. The Court granted a rule *nisi*.

Employers' Liability.—Messrs. J. and Eborall, builders, of Queen's-road, Chelsea, the defendants in an action recently heard at Brompton County Court, when £100 damages claimed by James Lawlor, a workman in employ. On the 26th of March last the pla was working for the defendants at 87, Elizab street, Pimlico. In carrying materials he ha cross the floor of the kitchen. There was the hole which plaintiff and another man had cov with planks. In crossing the hole one of the pl broke, and Lawlor falling into the trench, rece serious injuries to his knee. In cross-examina the plaintiff admitted that it was impossible i kitchen to discover that the plank was eaten with dry-rot, though, after pressure from own counsel, he said that, before the plank brought to the kitchen, its state might have discovered. The jury gave a verdict for defendants.

Liability of Corporations for Floo Matthews v. Mayor, Aldermen, and Burg of Barrow-in-Furness.—Judgment was giv this case on Wednesday, by Mr. Justice A Smith, tried at Liverpool Assizes, without a j which raised an important question as to lia for the flooding of premises during heavy r owing to neglect on the part of the local autho or their servants. The plaintiff sought to re compensation by reason of the defendants' ne in the management of their sewers, whereb houses were flooded. They denied their all negligence, and also set up that, even if there been such negligence, the plaintiff's houses w have been equally damaged whether there had negligence or not. Several similar actions depe on the same facts, and were governed by the r of the present one. The plaintiff was the own 16 houses at Barrow, which were built in 1884 had never been flooded prior to the flood in que on December 31, 1890, when 15 of these h

e flooded by water and sewage to the depth of in the basements. In 1875 the municipal norities began to lay down a "dual" system of nage in the borough. This system, however, not been completed, so that the storm and te water had access to the sewage pipes. carry out the sewage system the de- lants had erected a pumping-station below n-water mark, to lift the sewage on to a higher l. The plaintiff's principal complaint was that pumps were not kept going, whereby the water sewage which collected in the sewage pipes ked up through the gratings and manholes, and s flooded his houses. The learned Judge now vered a written judgment in favour of the ntiff on the principal ground of action, the unt of damages to be hereafter assessed. It agreed that the same judgment should follow the other cases, and counsel stated that the unt of the damages (as it would not be above 0 in any case) would probably be settled.

ROPERTY OWNERS AND PROJECTING SIGN RDS.—At the Leeds town hall on the 13th inst., vard Wray, builder, Spencer-place, Leeds, ap- red in answer to a summons charging him with reach of the by-laws by allowing a nuisance to t over property owned by him near Leeds lge in the shape of a sign projecting from a o some 9ft. over the pathway. The case was ore the Stipendiary last week, and on that ision was remanded with the object of seeing ther the defendant, who is the owner of the perty, and who contended that he was not onsible for the alleged nuisance, as it had been up by his tenant, would have the sign removed. the case being called on, the town clerk inti- ed that the sign complained of was still over shop, and that nothing had been done. The endiary therefore ordered defendant to pay 2s. day extending over fourteen days, 28s. in all, the costs.

N RE H. VICKERS.—A deed of arrangement has n executed by Henry Vickers, Waterway- et and Wilford-road, Nottingham, contractor, the payment to his creditors of a composition of 3d. in the £, payable in three instalments. The ecured liabilities are £12,080 9s. 10d. The mated net assets are £5,300, and the creditors y secured are £21,836 5s.

N RE J. DAVISON.—At the Birkenhead Bank- tcy Court on Friday, John Davison, contractor, on, formerly a member of the Birkenhead wn Council, again appeared in custody of a der from Kirkdale Gaol, for his public examina- . The statement of affairs put in by the debtor wed liabilities amounting to £18,933 6s. 2d., of ch £4,090 would rank for dividend. The gross ts were stated at £4,712 14s. 6d., of which 50 consisted of equities which the trustee con- red of little value. The debtor stated that n he signed the statement of affairs he con- red it was correct, but now he found it was t incomplete. Ultimately, on the application Mr. Madge, the examination was again urned for six weeks, debtor being ordered in meantime to make up his books to the date of receiving order, and also to furnish a trading unt for the last two years. An application for ase from gaol was granted.

emorial stones of a new Welsh Wesleyan pel for Pontardulais were laid on Thursday rnoon in last week. The building is being con- cted by Mr. D. Williams, of Knighton, from the gns of Mr. E. Bath, Swansea, and will cost 00. There will be accommodation for 400 ons.

he directors of the Tower Company (Limited), se capital of £70,000 has been privately sub- bed, have entered into an agreement to lease ut 124 acres of the Wembley Park Estate, ther with the now almost completed founda- s of the proposed tower. The agreement for lease is for a term of 999 years, at a rental of 00 a-year, from October, 1892, in addition to -fourth of the annual profits after the lessees e received a dividend of 15 per cent. per annum. a lease has been taken by a newly-formed com- y, and whose proposed capital of £200,000 will wholly devoted to the erection of the structure ne tower above the level of the foundations.

n inquest was held on the 22nd inst. at Leicester he body of Shadrick Norton, master-builder, of town, aged 52 years, who committed suicide anging himself in his water-closet the same ning. Evidence having been given that deceased been moody since he fell from a ladder five ks since and hurt his head, a verdict of suicide le of unsound mind was returned by the jury.

he new Mann Memorial Institute at Moreton-in Marsh was opened on Wednesday week. It is of local stone, and contains an assembly hall, by 17ft., and club premises. Mr. J. F. ver, of Kendal, was the architect, and Messrs. ves and Son, of Milton-under-Wychwood, were builders. The outlay was £1,600.

WATER SUPPLY AND SANITARY MATTERS.

ALNWICK.—The Alnwick Local Board of Health have instructed Mr. D. Balfour, M.Inst.C.E., 3, St. Nicholas-buildings, Newcastle-on-Tyne, to report on a scheme of sewage disposal for the town of Alnwick.

THE CITY AND THE WATER SUPPLY.—A committee have presented to the Court of Common Council a report in relation to water supply. They recommend that a Bill be introduced next session for the following purposes—viz., To give statutory powers to the joint committee of the Corporation and the London County Council; to authorise that joint committee to give notices to treat to the Metropolitan Water Companies within four years, and to make the giving of such notices obligatory at the expiry of that period; to constitute a tribunal to ascertain the price to be paid, and to clothe such tribunal with the fullest powers of inquiring into and deciding upon all such questions as it may consider necessary with a view to purchase; to enable such tribunal to decide as to the purchase by local authorities outside London of the works of distribution within their district, and also to decide as to the supply of water in bulk to such outside authorities; and to pay for the undertaking by stock having the ultimate security of the county rate.

KEGWORTH SEWERAGE.—A Local Government Board inquiry was held on Wednesday, 21st inst., at Kegworth, by Major-General Carey, R.E., with respect to an application for sanction to borrow £5,000 for sewerage and sewage-disposal purposes. Mr. W. H. Radford, C.E., of Nottingham, is the engineer for the scheme, and he explained the plans. It is proposed to construct new pipe sewers to deliver the sewage by gravitation to the sewage-disposal site, where it would be pumped a lift of about 12ft., and purified by broad irrigation on eight acres of suitable land.

CHIPS.

A group of class-rooms and offices is about to be added to the Rochester Grammar School for Girls, from plans by Mr. J. W. Nash, of that city.

An Oddfellows' hall has just been built at Thetford, on the site of a schoolroom in Earl-street. It is red bricks, with stone dressings. Mr. S. Holden, of Station-road, Thetford, was the builder, and Mr. Remnant, of Bury St. Edmunds, the architect. The cost was £1,100.

St. David's Welsh Church at Cardiff was consecrated on Wednesday week. It consists of a chancel 38ft. 6in. by 22ft. 3in.; nave, 67ft. by 24ft. 3in.; and north aisle, 67ft. by 11ft. 6in., and vestry. The church will seat nearly 500 people, and cost £4,500. Mr. E. M. Bruce Vaughan is the architect. The reredos is of Caen stone, made by Messrs. Jones and Willis.

A peal of six bells, cast by Messrs. Taylor and Co., of Loughborough, was dedicated in Llandygwydd Church, in Tivyside Valley, on Wednesday week.

A meeting was held at Chester on Tuesday week, the chairman of the Flintshire County Council presiding, to consider the advisability of constructing a bridge over the Dee at Queensferry. It was resolved to push on with the project for a swing bridge, which is estimated to cost £10,000. There will be an additional £2,000 for constructing the approaches, and a private Act of Parliament must also be obtained.

The Leeds town council have adopted a scheme for the drainage of Rodley district, with a separate disposal on the broad irrigation plan, prepared by their engineer, Mr. Thomas Hewson.

At a meeting held at Thetford last week, it was decided to proceed with the restoration of St. Peter's Church, in accordance with a report prepared by Mr. Edward Boardman, of Norwich. The estimated cost will be £1,000.

The London County Council on Tuesday resolved, by 90 votes to two, to take steps for acquiring the undertaking of the London Street Tramways Company. By a majority of eight they also declared that they had no intention of working or seeking power to work the tramways.

The Mayor of Warrington laid yesterday (Thursday) the foundation-stone of the new corporation baths in that borough. The new baths will be an extension of the present ones, and will cost about £5,000. They will include a new swimming-bath, with a water-space of 73ft. by 43ft., as well as shower, soap, and vapour baths.

As a number of men in the employ of Mr. Ralph Clarkson, of Bolton, were engaged demolishing the ruins of Prestoke Chemical Works, near Bolton, on Tuesday, a building collapsed, and three of the workmen and a bystander were killed immediately. Mr. Richard Clarkson, brother of the contractor, was one of those who lost their lives. About 400 tons of *débris* have fallen.

Our Office Table.

THE dean and chapter of Norwich Cathedral have received a memorial from resident householders in the Close, expressing surprise and regret at the proposal to lease for building purposes portions of the Lower Close. They urge that such a course is for many reasons to be strongly deprecated. The erection of such buildings would shut out the sun and air from the lower square, and destroy one of the most admired and picturesque views of the cathedral. Other parts of the scheme would greatly curtail the open spaces nearer the river, upon the possession and preservation of which around the cathedral Norwich has been frequently congratulated. The land lies too low for healthy residential purposes, and building sites much more eligible for sanitary reasons than the Lower Close are available in any quantity. The memorialists ask that the entire scheme may be abandoned.

MR. GEORGE WALLIS, F.S.A., who only retired a fortnight since from the office of Keeper of the Art Collections at South Kensington Museum, died on Saturday at his residence at Wimbledon, in his eighty-first year. Mr. Wallis had been in failing health. His busy life had been wholly devoted to the promotion of art instruction. As far back as 1841 he was connected with the Government School of Design at Somerset House, the foundation of the Department of Science and Art. In 1843 he became the master of the Spitalfields School of Art, and in the same year went to Manchester as head master, a position he resigned three years later. For several years from 1846 Mr. Wallis was engaged in the advocacy of schools, museums, and exhibitions; he was prominent in the conduct of the Great Exhibition in 1851, and at its close was sent to Birmingham to reorganise the school of art, a matter in which, as head master for several years, he rendered essential service, and attained marked success. In 1853 Mr. Wallis was one of six commissioners appointed by the Government to visit the United States. Mr. Wallis's report on art and art manufactures was presented to Parliament in 1854. During the Great International Exhibition of 1862 Mr. Wallis acted in the same capacity as in 1851, and in 1867 he superintended the British section of the History of Labour in the Paris International Exhibition, and acted upon the juries. In 1858 he joined the South Kensington Museum, where, in 1863, he was appointed senior Keeper of the Art Collections, a position which he filled for 28 years. Two of his sons are now doing in other departments the work which their father did so well at South Kensington—Mr. George H. Wallis, as the keeper of the Corporation Museum and Gallery at Nottingham; and Mr. Whitworth Wallis, who holds the same position at Birmingham.

MR. ANDERSON'S church hat peg, a sample of which has been sent us, is a real aid to devotion, or ought to be, so completely is the usual anxiety of the male worshipper about his tall hat relieved by its use. By using the peg, a hat is preserved from the feet, knees, and dresses of ourselves or neighbours, and may be taken to church without risk, and brought out again free of all injury. The hat is liable to no dust, no danger; but is as safe as in a bandbox. The peg has a gimlet-pointed screw, which does not require a hole to be bored for it; but can be fixed by anyone in a few seconds, and a star-shaped rubber washer prevents the hat from slipping. Buy one at once—the cost is only a shilling—take it to church next Sunday and leave it there, and any sensible churchwarden will bless you for the hint, and adopt it at once throughout the edifice.

MR. GEORGE SIBLEY, C.I.E., Memb. Inst. C.I., F.R.G.S., died on Sunday last, at his residence, The Mount, Whitehill, Caterham, at the age of 67. On leaving University College School he was apprenticed to his father, an architect and civil engineer in London. In 1845 he was employed upon the Bristol and Exeter Railway, under Mr. Brunel, and afterwards under Sir Charles Hutton Gregory. In 1851 he went to India, and was engaged upon the East India Railway, under Mr. James Meadows Rendel. He gradually worked his way up, and in 1859 became the chief engineer of the North-Western Provinces Division, and, in 1868, chief engineer

of the whole line of 1,500 miles. He retired from the service and from the profession in January, 1876. Among the more important works constructed under his supervision was the Jumna Bridge, Allahabad, which was completed in 1866, and was, at that time, the largest bridge existing, being supported on 14 piers, and having a railroad above and a carriage and footway beneath. Mr. Sibley joined the Institution of Civil Engineers as an Associate in 1850, and eight years afterwards became a full member. He was the author of several contributions to scientific, engineering, and geographical journals, and it is understood that he has left a considerable legacy to the University of Calcutta for the purpose of founding engineering scholarships for the encouragement of native engineering students. He was nominated a Companion of the Order of the Indian Empire.

Mr. Deputy Edmeston, F.R.I.B.A., in a letter to a City journal, expresses his disapproval of the policy of laying down wood paving, on the score of the offensive odours it emits from being saturated with horse-manure. As he points out, it is of great importance to prevent water stagnating between the blocks, and even at the best it is absolutely necessary to constantly and liberally apply deodorising chemicals, while the blocks should, as Dr. Sedgwick Saunders suggests, be well impregnated with tar or chloride of mercury.

The first iron suspension bridge has just been constructed in Iceland. It spans the river Oloussa, near Reykjavik, the capital, and is 372ft. long by 9ft. wide, and 27ft. above the stream. The contract was taken by Mr. Tryggvi Gunnarsen, an Icelandic merchant, who relet it to a firm in Newcastle-on-Tyne, Messrs. Vaughan and Dymond, and Mr. Vaughan himself went over in June last to superintend the erection, with workmen from England. All the materials had previously been transported on sledges over the ice during the winter from the next harbour, Eyrarbakki. The six steel wire ropes, weighing $5\frac{1}{4}$ tons each, and 430ft. long, were carried upon the shoulders of 180 men, and took two days in transport from Eyrarbakki to the site of the bridge, a distance of about nine miles.

The tendering for the new Ramsgate front road improvements was of a very close character. With the exception of two tenders, which were evidently not meant for competition, they varied from £35,600 to £45,948, the average of the whole being £39,801, against the engineer's estimate of £39,149 for this part of the work. This speaks well for the correctness of the drawings, specification, and quantities. It will be remembered that the engineer's estimate for the total structural work was given in the first instance at £45,000, which sum was increased to £48,047 at the desire of the quantity surveyors, Messrs. Hovenden and Berridge, so as to leave a safe margin. By the price of the accepted tender, however, it seems that the original estimate of the engineer will not be exceeded.

Mr. John Wills, F.S.Sc., architect, of Derby, Eng., who is a delegate to the Methodist Œcumenical Conference at Washington, D.C., addressed a meeting of Methodist ministers in Toronto recently, says the issue just to hand of the *Canadian Architect*, on the subject of "Methodist Church Architecture." He also exhibited a number of his own drawings from which churches have been erected in different parts of England. Mr. Wills recommends that there should be at least four means of egress for all large churches. He thinks the Gothic, properly and carefully adapted to modern forms of worship, the most appropriate style of church architecture. He is of the opinion that the situation of the organ and choir should be either behind the minister or in the same end in one of the transepts. Concerning methods of heating, his preference is for the hot-water low-pressure system.

At a largely attended public meeting, held in the town-hall, Belfast, on Saturday last, under the auspices of the Ulster District Council for the National Registration of Plumbers, the following resolutions were passed:—"That this meeting is of opinion that an efficient system of registration of plumbers is essential to the protection of the health of the community, and, such a system having been established by the Worshipful Company of Plumbers, London, we believe the time has arrived when application should be made to Parliament for powers enabling a national council of competent jurisdiction and authority to take measures for promoting the technical education of plumbers, and regulating the practice of those registered." "That this meeting, having considered the Bill promoted by the Worshipful Company of Plumbers, hereby express their general approval of the principles of the same, and resolve to give it their hearty support." The clerk of the Plumbers' Company attended, and fully explained the objects of the Bill in question to the meeting.

CHIPS.

The deadlock between the contractors (Messrs. Lucas and Aird) and the directors of the new West Highland Railway is now at an end, a satisfactory settlement having been come to between the parties. The work is to be vigorously carried forward.

Mr. Felix Joseph has presented to the Derby Art Gallery specimens of old Derby Crown china, representing various periods of its manufacture. The gift is worth at least £3,000. In recognition of his munificence, the Town Council held a special meeting on Tuesday, and presented Mr. Joseph with an address, together with a handsome collection of the Royal porcelain at present manufactured in the town.

The new workhouse infirmary, Grantham, is being warmed and ventilated by means of Shorland's patent Manchester stoves and exhaust ventilating shafts, the same being supplied by Mr. E. H. Shorland, of Manchester.

The tower of Waddesdon parish church is being rebuilt from plans prepared by Mr. W. White, of Wimpole-street, London, W., the contract being taken by Mr. H. H. Sherwin, of Waddesdon. Mr. J. Beer, of Brixton, is the clerk of works.

The American Institute of Architects has been holding this week its twenty-fifth annual convention in the city of Boston, Mass. The congress began on Wednesday, and will close to-day (Friday).

The Huddersfield town council have appointed Mr. W. R. Herring, of Hastings, as assistant gas manager at a salary of £300 a year.

A new Roman Catholic Church is being built at Tranent, from plans by Mr. John Beggar, of that town.

A London correspondent states that Lord Esher, the Master of the Rolls, has erected a family tomb in Esher Churchyard with marble figures of himself and Lady Esher, both of whom are happily still in a position to apply the moral of this sermon in marble.

The death is announced of M. Vincent Labouret, architect of the Ministère des Affaires Etrangères, the Hôtel de Louvre, and the Grand Hôtel, Paris. He had much to do with the new portions of the Louvre. He was seventy-six years of age.

Three new lancet stained-glass windows have just been placed in the chapel of Ratcliffe College, Leicester. The first represents St. Robert, Abbot, the second St. Richard of Chichester, and the third St. Aloysius. All three windows were executed by Messrs. Hardman, of Birmingham.

At the Norwich Bankruptcy Court on Tuesday week the bankruptcy was closed of Wm. Evans, of South Walsham, builder and contractor. The liabilities were £1,800 3s. 10d.; the deficiency, £850 1s. 4d.

The annual report of the directors of the Metropolitan Industrial Dwellings Company (Limited) states that the gross revenue for the year has been £13,989, and the net profit £2,559. The directors recommend the payment of a dividend for the half-year at the rate of 5 per cent. per annum. The directors have recently purchased property situated in the densely-populated district close to the Tower, and known as Royal Mint-square.

At the meeting of the Middlesex County Council, on Friday, Mr. H. R. Williams presented, on behalf of the subscribers, a life-size portrait of Lord Strafford, the Lord Lieutenant of the county, which had been painted by Mr. Percy Bigland.

The memorial stone of new Catholic day-schools has been laid at Longsight, Manchester, by Sir Henry Roscoe, M.P. The schools are erected in Richmond-grove, consist of two stories about 100ft. by 35ft., are faced with Ruabon stocks, and accommodate about 500 children. The contractors are Messrs. Wilson and Toft, of City-road, Manchester, and the architects are Messrs. Heathcote and Rawle, of 6, Princess-street, in the same city.

A new Masonic hall has been erected at Bridgend, and special attention has been paid to the ventilation, the latest improved form of Messrs. Robert Boyle and Son's patent self-acting air-pump ventilator being adopted for the extraction of the vitiated air.

MEETINGS FOR THE ENSUING WEEK

Monday.—Royal Institute of British Architects. Opening address by the President, J. MacVicar Anderson. 8 p.m.
Society of Engineers. "Corrosion in Steam Boilers," by J. H. Paul, B.Sc. Westminster Town Hall. 7 30 p.m.
Tuesday.—Glasgow Architectural Association. "The Stones of Venice," by L. D. Penman. 8 p.m.

The Architectural Association, 9, Conduit street, W., and 56, Great Marlborough-street, W.

The Architectural Association Courses of Lectures and Classes and Studio Instruction are now being carried on. The Courses are both elementary and advanced, and are designed to provide a sound professional architectural education, supplementary to that to be obtained by the prevailing system of pupilage. The Courses also serve as a means of preparation for the Intermediate and Final Examinations of the Royal Institute of British Architects. The Course, which is divided into four years, is progressive and consecutive, and the instruction is given by Lecturers and Instructors of known ability.

First Year.

LECTURES AND CLASSES.—The orders of Greek and Roman Architecture, Building Materials, Geometry, Physics, Perspective, Mensuration, Chemistry, Geology.

THE STUDIO.—Drawings from ancient examples, Freehand Drawing, Drawing examples of Construction, Plane Geometry and Perspective, Sketching and Measuring.

Second Year.

LECTURES AND CLASSES.—English Architecture, Principles of Construction, Strengths of Materials, Land Surveying, Chemistry of Building Materials, Elementary Ornament and Colour Decoration.

THE STUDIO.—Designs based upon ancient examples, Freehand Drawing, Drawings of Elementary Construction, Solid Geometry, Sketching and Measuring.

Third Year.

LECTURES AND CLASSES.—The History of Architecture, Materials, Stresses and Strains, Specifications and Quantity Surveying, Ornament and Colour Decoration, Sanitary Science, Elements of Natural Philosophy.

THE STUDIO.—Design of modern Buildings, Freehand Drawing from Casts, Perspective and Sciography, Constructive Masonry, Modelling, Elementary Water-Colour Drawing.

Fourth Year.

LECTURES AND CLASSES.—The History of Architecture, Materials, Sanitary Science, Measurement and Valuation of Building Materials, Professional Practice, The Arts Allied to Architecture.

THE STUDIO.—Design of Modern Buildings, Freehand Drawing from Casts, Graphic Statics and Perspective, Modelling, Water-Colour Drawing.

A pamphlet containing full particulars of the Curriculum and Fees may be obtained free on application to the Hon. Secretaries, at 56, Great Marlborough-street, London, W.

ERNEST S. GALE
F. T. W. GOLDSMITH } Hon Secs

Mr. F. T. Maltby, Assoc.M.Inst.C.E., engineer and surveyor to the Dorchester Corporation, has been elected by the council to the office of borough surveyor, Guildford, at a salary of £300 per annum. There were 154 candidates for the appointment.

The new pier at St. Leonard's was opened on Wednesday by Lady Brassey. The cost of the undertaking is about £30,000. The pier starts from the parade opposite the Western Colonnade and is carried out on three clusters of piles to the pavilion enlargement, which is only 200ft. from the parade. From this point the deck is carried out on six groups of piles to the pierhead, the total length being 950ft., a few feet longer than Hastings pier. Mr. Richard St. George Moore, A.M.I.C.E., Westminster, was the engineer.

At Tuesday's meeting of the Bristol city council a motion relating to the duties of the city surveyor was brought before the council the question of requiring officers of the corporation to devote the whole of their services to the city. This matter has been discussed in Bristol on several occasions, and the principle has been generally admitted, but in the case of the city surveyor there has been this difficulty—that the members of the council were not prepared to pay Mr. Josiah Thomas such a salary as would induce him to relinquish a very remunerative private practice which he has undertaken privately with the consent of the corporation. A definite statement was in fact made on Mr. Thomas's behalf, to the effect that he would be willing to give up his private practice. The rearrangement of the duties now assigned to the city surveyor and borough engineer, was referred to the Finance Committee to report upon to the council.

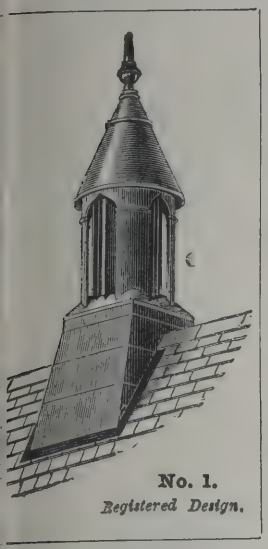
Mr. Wilson Weatherley Phipson, M.Inst.C.E., of John-street, Adelphi, and Long Clawson, Leicestershire, died very suddenly on Wednesday week, aged 53 years. Mr. Phipson was educated in Brussels and Paris, where, through the instrumentality of Earl Cowley, his father was enabled to enter him as a student at the Ecole Impériale des Ponts et Chaussées. After having done some work in Paris, Bordeaux, and Holland, connected with the heating and ventilation of hospitals, he came to England. There are few public buildings of modern date in Great Britain on which he has not been engaged in conjunction with many of our leading architects, more especially the Royal Albert Hall, the University of Glasgow and Edinburgh, the Natural History Museum, the Institution of Civil Engineers, &c. He had been a member of the latter institution since 1878, having nine years previously joined that body as an Associate.

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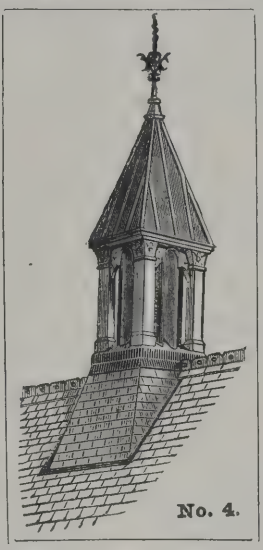
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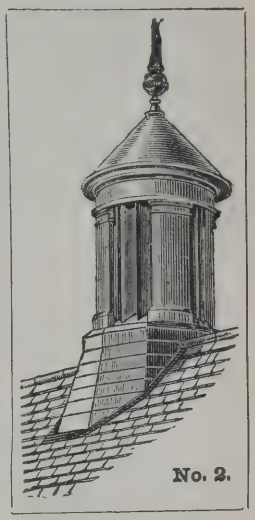
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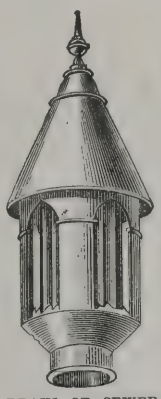
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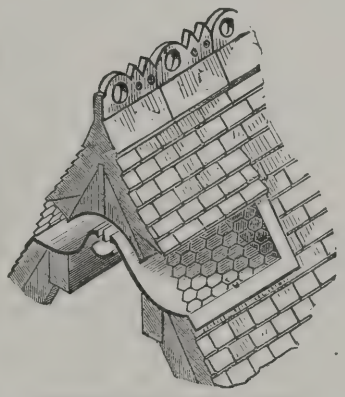
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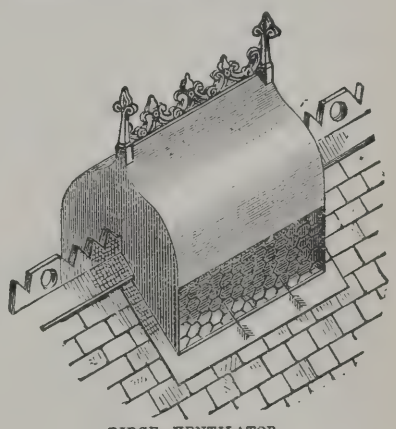
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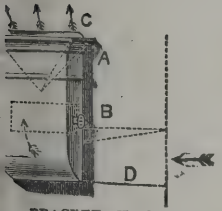


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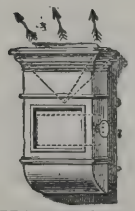
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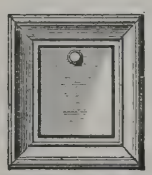
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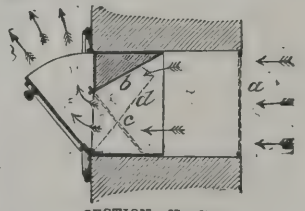
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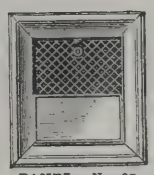
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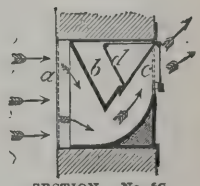
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Trade News.

WAGES MOVEMENTS.

Aberdeen.—At a meeting on Friday night of operative plumbers in Aberdeen, a letter was read from the Masters' Association declining to grant 1d. per hour increase for reduced time from November 1 till February 28, making the hours 46 instead of 51, and it was resolved, as the masters refused arbitration, to strike on Monday next.

The Arbitration in the Carpenters' Dispute.—Mr. J. MacVicar Anderson, P.R.I.B.A., the arbitrator in this case, held his fourth sitting on Tuesday afternoon at 9, Conduit-street, W., when the arguments for and against the chief points in the memorial were raised, and evidence having been called, the matters in controversy were fully discussed. A final sitting will take place on Tuesday afternoon, when the arbitrator will receive evidence as to the hours and rates of wage in the other building trades. The award is expected to be given at a very early date, and while, of course, no estimate of its probable purport can as yet be formed, both master builders and men are alike to be congratulated upon the expeditious and exhaustive mode in which the reference is being conducted.

CHIPS.

The London and South-Western Railway Company intend to apply next session for powers to construct an electrical railway in a subway from Waterloo to the City.

Considerable progress has been made with excavations now being carried out for the Marquis of Bute, under the superintendence of Messrs. Kempson and Fowler, of Llandaff, on the site of the old Blackfriars Monastery, which is within the grounds of Cardiff Castle. Many parts of the old foundations have been traced, a piece of the original consecrated altar slab has been found, also many interesting fragments of tombs, pieces of worked stone, glass, tiles, &c., all of which are being carefully preserved.

A new church is about to be built at Middleton-cum-Stourton, near Leeds. The site is in the Pontefract-road, and the architect is Mr. C. Hodgson Fowler, F.S.A., of Durham.

The foundation-stone was laid on Thursday of a new home for incurables at Spital Tongues, Newcastle-on-Tyne. It is being built for the corporation of that city out of charity funds at a cost of £13,000, and will house 68 patients. Mr. Edward Shewbrooks, of Newcastle, is the architect, and Messrs. Middlemiss Brothers are the contractors; Mr. David Reid is the clerk of works.

Two memorial brasses were uncovered on Tuesday in the south-east, or Artists' Corner, of the crypt of St. Paul's, to mark the place where Sir Edgar Boehm, R.A., was recently buried. One is a massive brass which covers the grave, and the other is fixed in the adjoining wall at the head of the tomb. The middle panel of the first brass contains a cross, with the name and date of birth, and the words which were suggested by the Queen, "Died at his work." The panel above contains the Bohemian coat of arms of the family, and the bottom shows Sir Edgar at work on a bust.

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TENDERS.

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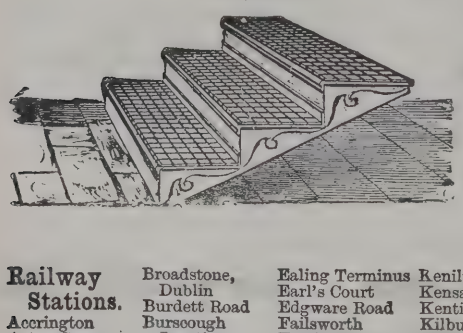
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Crewe
Crooked Billet
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Crumpsall
Cullercoates
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Daubhill
Daybrook
Denholme
Derby
Droylesden
Drighlington
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Ealing Terminus
Earl's Court
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Failsworth
Farringdon Street
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Firsby
Forest Gate
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Greenwich
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Haggerston
Hammersmith
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Highbury
Highdran Road, Wallsend
Hollinwood
Holyhead
Homerton
Horley
Hounslow
Hounslow Barracks
Keighley
Kemble Junction
Kenilworth
Kensal Green
Kentish Town
Kilburn
Kilsby
King's Cross
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Monkwearmouth
Moorgate Street
Monument
Newcastle-under-Lyme
New Cross
Newport
Newton Heath
North Brentford
North Bridge
Northampton (Castle Station)
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Oldham (Mumps)
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Victoria
Victoria Park
Walham Green
Wallsend
Walsall
Waterloo, Liverpool
Weaste
Werneth, Oldham
Westbourne Park
West End Lane
Westminster
Whitchurch
Whitechapel
Whitefield
Whitley
Widnes
Willenhall
Bridge
Willesden
Wood Green
Wormwood Scrubbs
Worsley
Wolverhampton
Wolverton

Barracks.
Aldershot
Ashton-under-Lyne
Barnet
Belfast
Budbrook
Burnley
Caterham
Chatham
Chester
Coventry
Curragh Camp
Dublin, Beggar's Bush
Dublin, Island Bridge
Dublin, Ship Street
Dublin Royal Barracks
Dundalk
Dublin Castle Police Barracks
Eastney
Fleetwood
Fulwood
Halifax
Hamilton, Glasgow
Hulme
Knightsbridge
Leicester, Glen Parva
Manchester
Newbridge
Newcastle-on-Tyne
Normanton
Northampton
Norwich
Portsea
Portsmouth
Preston
Regent's Park
Salford
Shorncliffe
Trim
Warley
Winchester
Woolwich
Wrexham

Schools, &c.
Belfast Methodist College
Battersea, St. Mary's Church
Birmingham, Cowper Street
Clapham
Colchester
Forest Gate
Hanway Place
Harrow
Haverstock Hill
Orphan Working School
Jamaica Level
Leyton, Grammar School
Leyton, Church Road
Newhaven
North Bow
Old Ford
Poplar, Byron & Bright Streets
Southsea, Church Path
Southsea, Omega Street
Stratford, grave Roa
Stratford, way Place
Sutton
St. Jude's
Tayport
Torrington
Upton Cross
Wandsworth

Hospitals
Belfast Co
Lunatic A
Greenwich
Guy's Hospi
Lincolnshire
County Asy
Middlesex
County Lun
Asylum
Netley Hospi
Peterborough
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Rubery Asyl
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BROUGHTON.—New machine shop and works for Messrs. Cunliffe and Croom, Broughton Iron Works. Mr. Walter R. Sharp, architect:—

Cleworth and Robinson, Church-street, Pendleton (accepted) ...	£1,138 0 0

EDMONTON.—For the erection of new entrance-lodge and waiting-room. Millfield House Schools, Tanner's End, Edmonton, for the Guardians of the Strand Union. Mr. S. Cross, F.R.I.B.A., architect:—

Austin and Son	£1,583 12 6
Paley	1,415 0 0
Groves	1,368 13 0
Staines and Son	1,296 6 6
Houghton, E., and Son, Stroud Green	1,258 0 0
Emmitt	1,228 0 0
Godfrey	1,194 0 0
Coldwell	1,146 0 0
Pocock	1,133 0 0
Webb	1,125 0 0
Wall, C.	1,086 0 0

EWELL, SURREY.—For alterations and additions to Sayles Hill, for Major Coates. Mr. C. E. Sayer, 17, Soho-square, London, architect:—

Smith, G. and A., Pimlico... ...	£1,285 0 0
Simonds, W. H., Reading* ...	1,282 0 0

* Accepted.

GREENWICH, S.E.—For the erection of a school in Blackwall-lane, Greenwich Marshes, to provide accommodation for 895 children, for the London School Board:

Pattinson, S. and W.	£17,016 0 0
Foster and Dicksee	16,928 0 0
Lorden, W. H., and Son	16,651 0 0
Killby and Gayford	16,542 0 0
Holliday and Greenwood	16,421 0 0
Lawrance, E., and Sons	16,081 0 0
Boyce, T.	16,073 0 0
Marsland, J.	15,410 0 0
Treasure and Son, Noel Park *...	14,713 0 0

* Accepted.

[(*a*) Cost of school buildings, technical room, and closets, £10,500; (*b*) tar pavement and covered playgrounds, £1,347; (*c*) boundary walls and gates, £811; (*d*) three teachers' rooms, £300; (*e*) schoolkeeper's house, £663; (*f*) glazed bricks, £777; (*g*) Extra depth of foundations, £315; add for brickwork to be built in cement, £250; total, £14,963. Cost per head of (*a*), £13 0s. 10d; total cost per head, £18 11s. 9d.]

HENDON.—For erecting house at Holders Hill, for Mr. A. T. Nisbet. Messrs. Cooper and Goulding, architects:—

Ellis and Turner, Aldersgate-street	£1,335 0 0
Holloway Bros.	1,188 0 0
Grist, Aylesbury	1,098 18 0
Brown, Stoke Newington	1,098 0 0
Houghton, E., and Son, Stroud Green (accepted)	1,065 0 0

[Architect's estimate, £1,117.]

HORNSEY.—For painting and repairing conservatories, &c., for Mr. H. R. Williams, The Priory, Hornsey. Mr. E. J. Paine, architect:—

Rimmott and Son	£350 0 0
Southcott	272 3 9
Houghton, E., & Son, Stroud Green	237 18 6

LONDON.—For alterations to the Albion, Caledonian-road, N., for the New London Brewery Co., Limited. Mr. W. M. Brutton, architect:—

Ford, G. W.	£400 0 0
Edwards and Medway	390 0 0
Archer, G. S.	390 0 0
Romaine and Co.	390 0 0
Arnold, J.	389 0 0

LONDON.—For alterations to the Red Lion, Duke-street, Manchester-square, W.C., for Mr. M. L. Carpenter. Mr. W. M. Brutton, architect:—

Archer, G. S.	£330 0 0
Ashwell, H.	305 0 0
Ford, G. W.	295 0 0
Edwards and Medway	292 0 0
Romaine and Co. (accepted) ...	276 0 0

LONDON.—For sundry repairs, &c., to Nos. 79 and 80, Milton-street, E.C. Mr. Herbert Knight, 129, Cheapside, architect:—

Prater, F. (accepted)	£177 0 0

LONDON.—For alterations to the Two Brewers, High-street, Vauxhall, for the New London Brewery Company, Limited. Mr. W. M. Brutton, architect:—

Romaine and Co.	£476 0 0
Gregory and Co.	419 0 0
Edwards and Medway	410 0 0
Ford, G. W.	392 0 0
Archer, G. S.	390 0 0

LONG ASHTON.—For widening the road below Flax Bourton Railway Station, for the Long Ashton highway board:—

Weeks, H., Wraxall (accepted).

MANCHESTER.—For Gravel-lane Wesleyan Chapel and Working Men's Institute. Mr. W. R Sharp, Manchester, architect:—

Accepted tenders.

Carpenter, joiner, ironwork, and stonemason:—
Southern, W., and Son, Chapel-street, Salford £4,350 0 0

Excavating and brickwork:—
Lord & Holland, Higher Broughton, Manchester £2,575 0 0

Plumbing, glazing, slating, heating, and ventilation:—
Scarlett Bros.... ... ... £1,495 0 0

(The whole to be carried out under the architect's supervision.)

SALFORD.—For the erection of Sherbourne street bridge, for the town council:—

Iron and steel work:—
De Bergue and Co. (accepted) ... £4,441 4 8

Abutments:—
Kellett, A. (accepted) 2,300 0 0

SALFORD.—Salford Corporation (Broughton Dist wheelwright and blacksmith shop. Mr. Walter R. S architect:—

Bridges, A., Lower Broughton, Manchester (accepted)	£758 0

SALFORD.—Salford Corporation (Broughton Dist new cart-shed, &c. Mr. Walter R. Sharp, architect

Hibbert, John, Moss Side, Manchester (accepted)	£637 0

SHEFFIELD.—For painting ironwork, &c., belong the Corporation, Sheffield, from quantities and spe tions prepared by Mr. C. F. Wike, C.E., bo engineer:—

Highway Committee.—Bridges, fencing, &c.:—

Beech, T....	£292 4
Topham, M. A....	268 17
Smith and Snape	259 0
Chadwick, C.	249 18
Machin, A.	186 11
Puttrell, J., and Co. (accepted) ...	163 0

Parks Committee.—Weston Park and Endcliffe Wo

Talford, S.	59 12
Smith and Snape	54 15
Topham, M. A. (accepted)	53 18

Firth Park:—

Smith and Snape	53 13
Hopkins, F.	39 11
Tinker, F. (accepted)	39 7

All of Sheffield.

SOUTHAMPTON.—For repairs to the roof of D for the harbour board:—

Preedy (accepted)	£46 8

SOUTHAMPTON.—For electric-light fittings for th for the harbour board. Messrs. Lemon and Poole neers:—

Shalders, Southampton (accepted) ...	£575 0

[Lowest of 15 tenders received; highest, £1,909 8

STOKE NEWINGTON, N.—For the enlargement Matthias-road School, Stoke Newington, by 379 and for erecting additional w.c.'s for boys, for th don School Board:—

Holloway Bros.	£6,243 0
Atherton and Latta	6,178 0
Cox, C....	6,086 0
Foster and Dicksee	5,915 0
Williams, G. S. S., and Son ...	5,907 0
Lawrance, E., and Sons	5,898 0
Lathey Bros.	5,748 0
Gregar, W., and Son	5,641 0
Downs, W*	5,411 0
Treasure and Son, Noel Park (accepted)	5,259 0

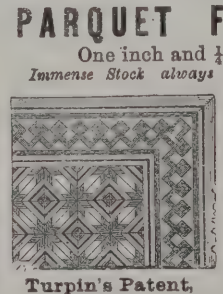
* This contractor adds: "Subject to the award tration, new pending, re carpenter's strike, not in wages as expected by the men."

[(*a*) Cost of school buildings and closets, £4, tar pavement, £187; (*c*) glazed bricks, £228; depth of foundations, £120; add for brickwork to in cement, £75; total, £5,434. Cost per head £12 9s. 3d; total cost per head, £14 1s. 5d.]

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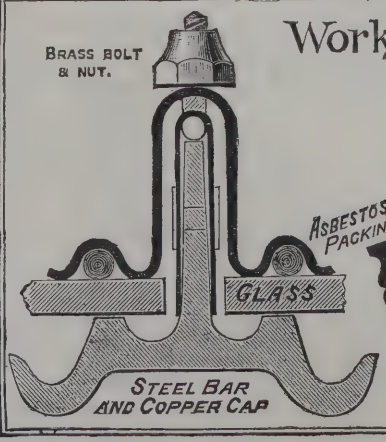
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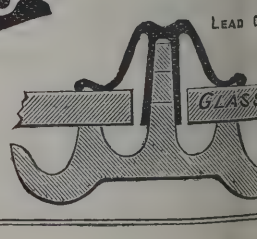
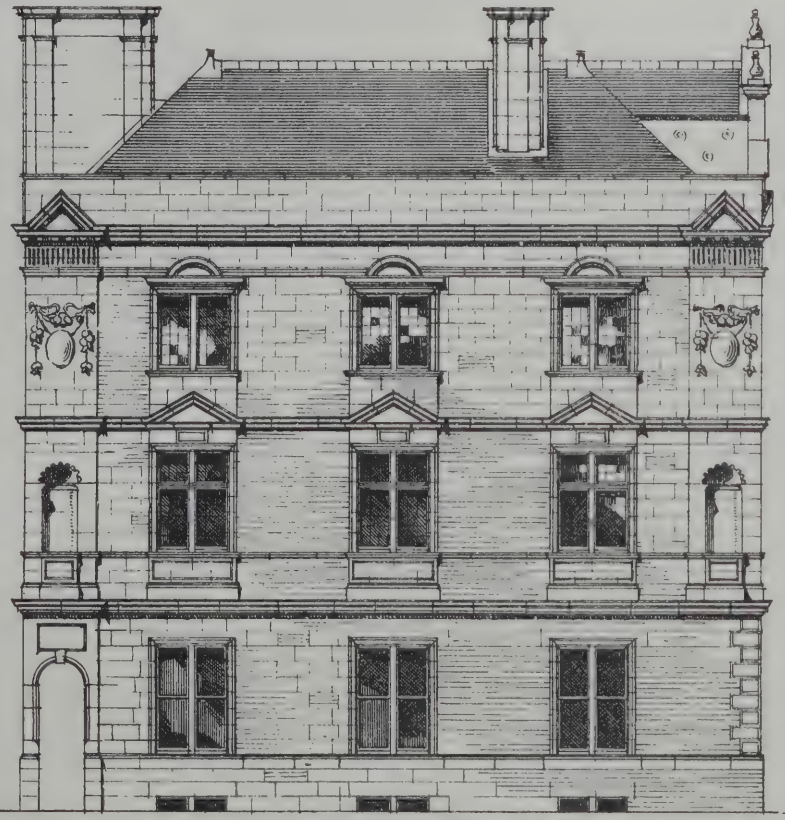
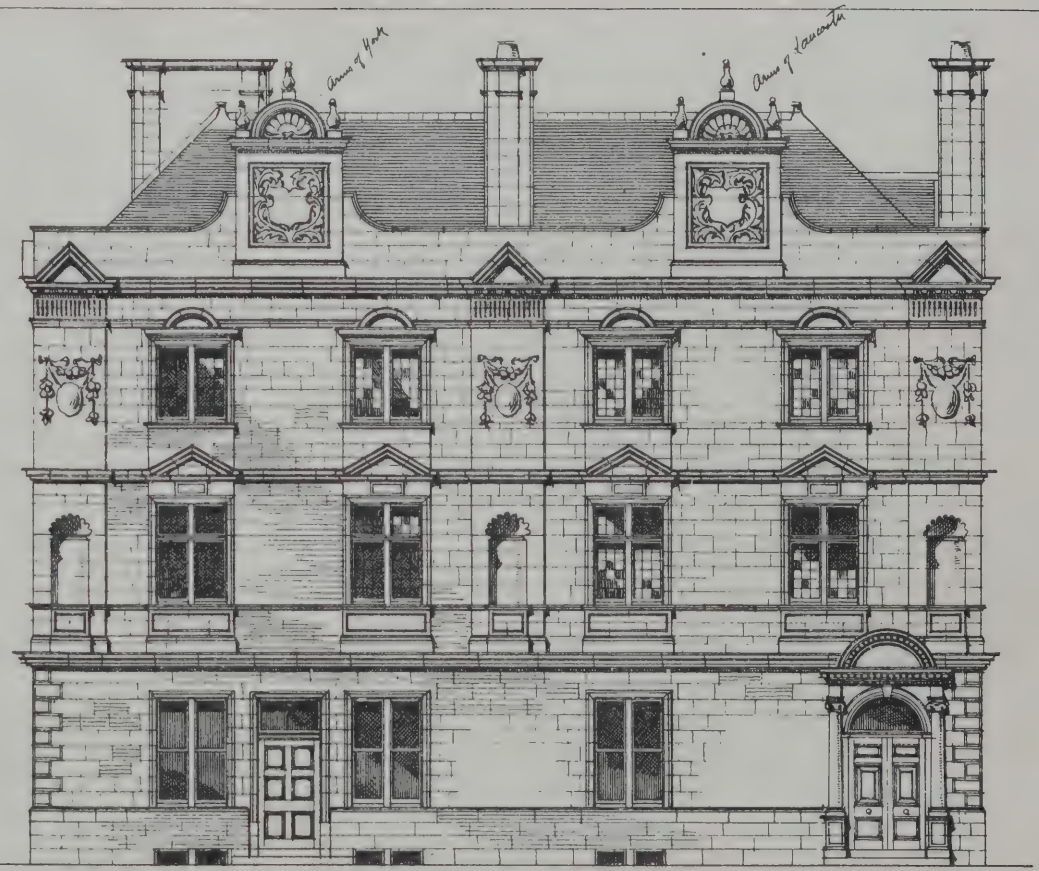




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Side Elevation



Front Elevation



first floor plan

THE LANCASHIRE AND YORKSHIRE BANK LIMTD

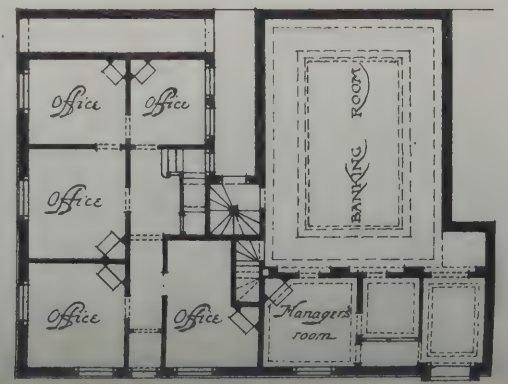
Branch Premises Burnley.

Scale of feet

10 5 0 10 20

10 5 0 10

Bell and Roper. Architects



Ground floor plan

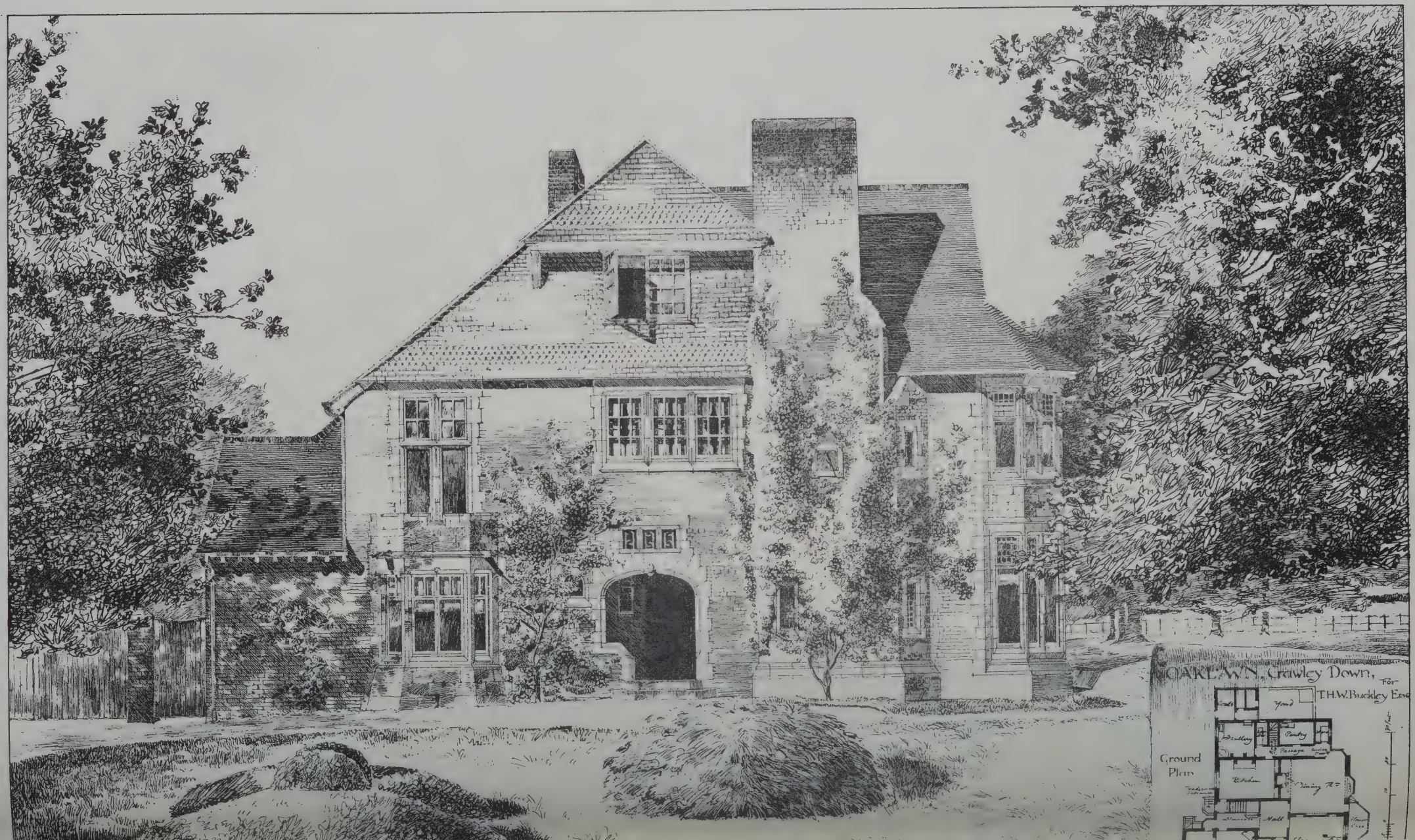
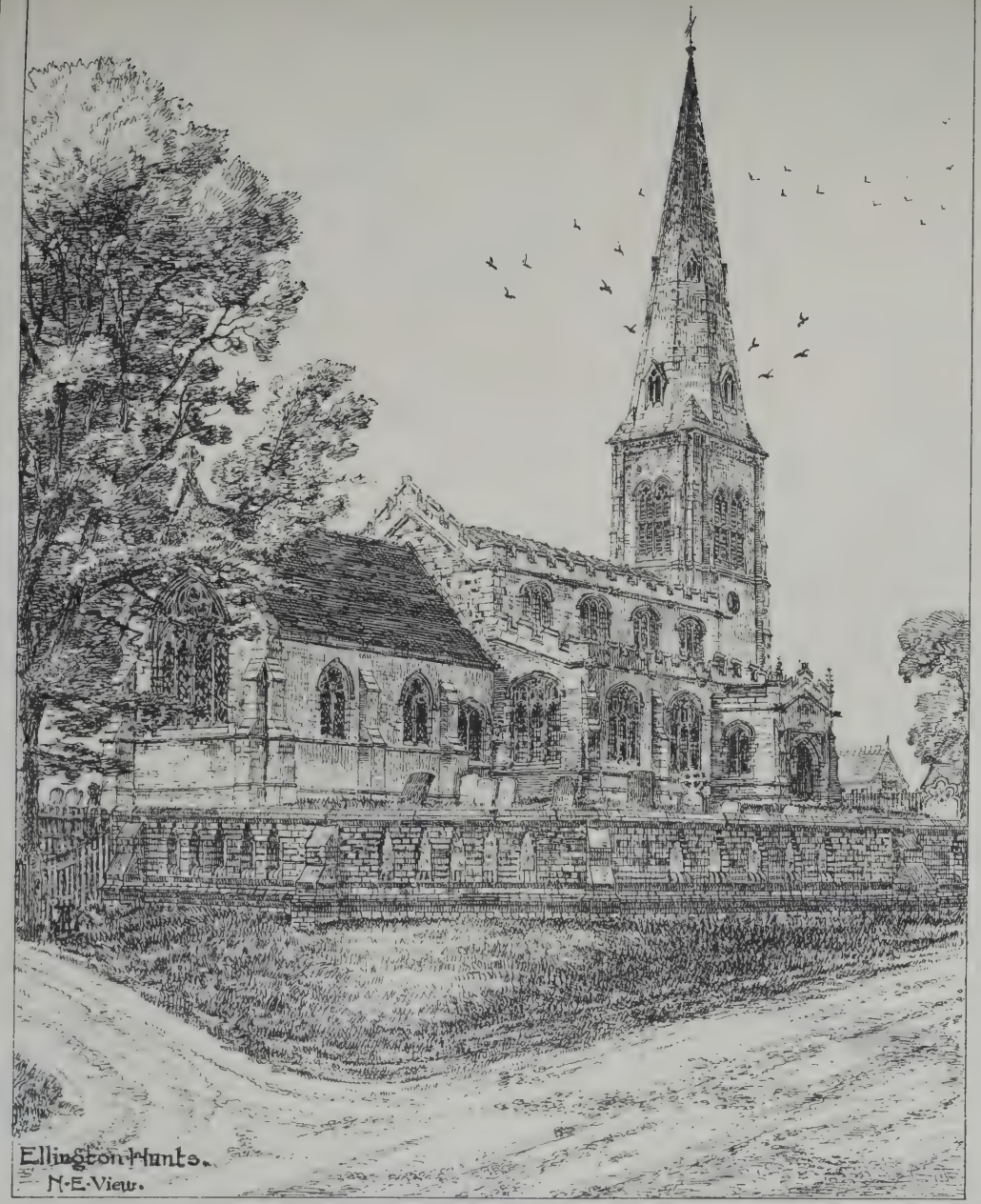
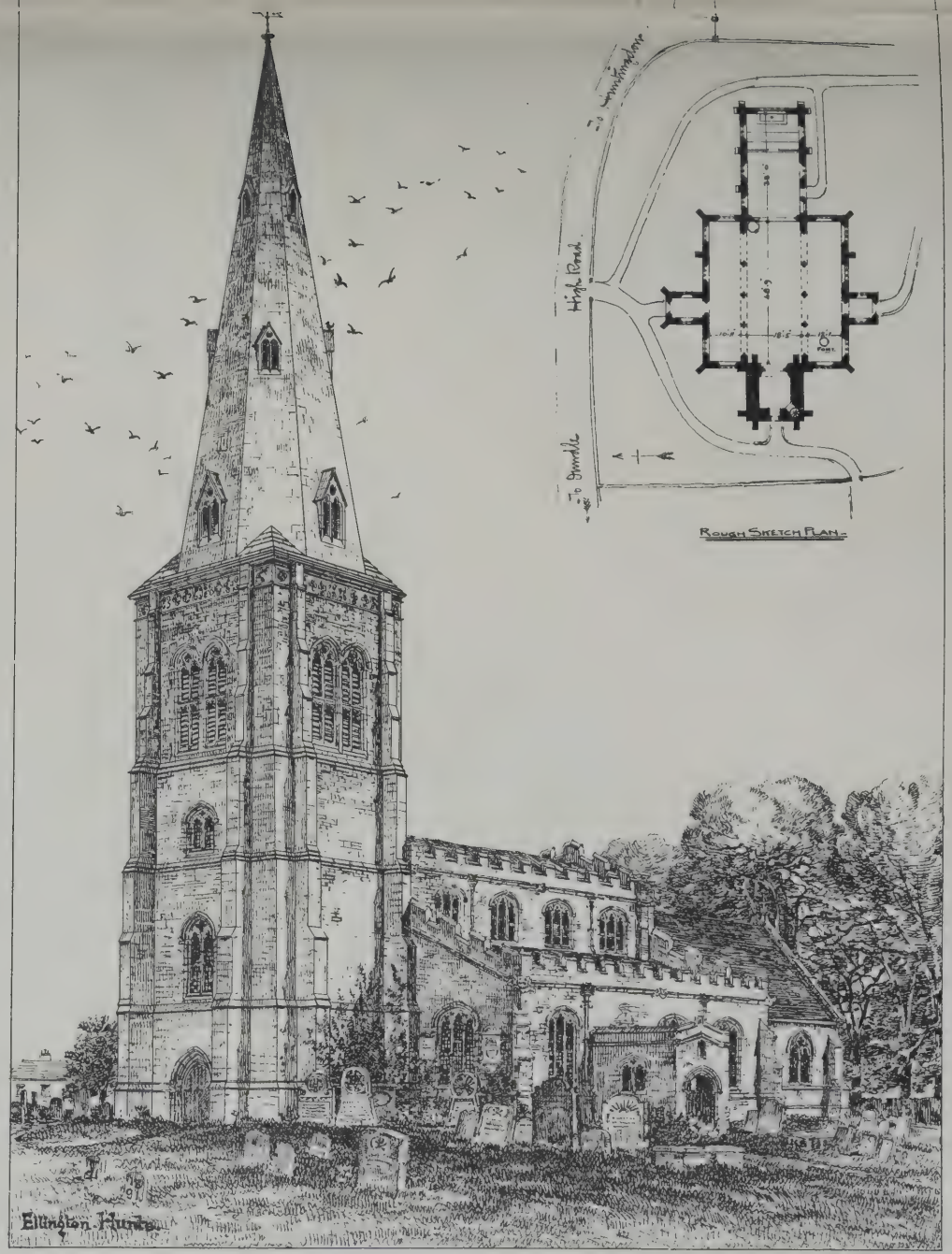

OAKLAWN, Crawley Down, For
T.H.W. Buckley Esq
Ground Plan
Yard
Pantry
Passage
Kitchen
Dining Rm
Hall



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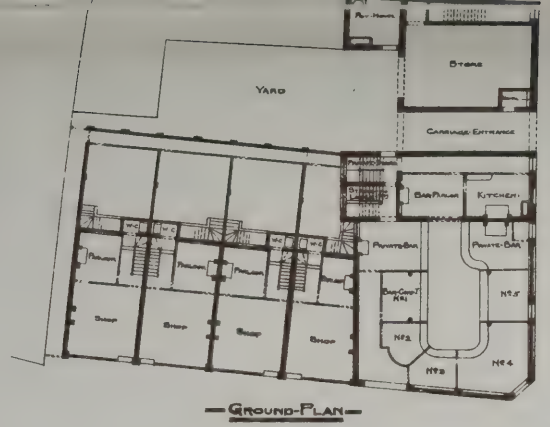
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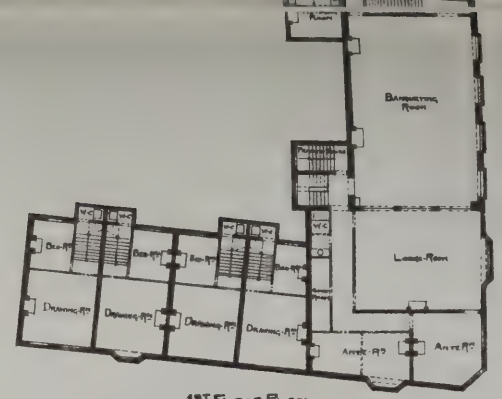
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12 SOUTH PLACE FINSBURY E.C



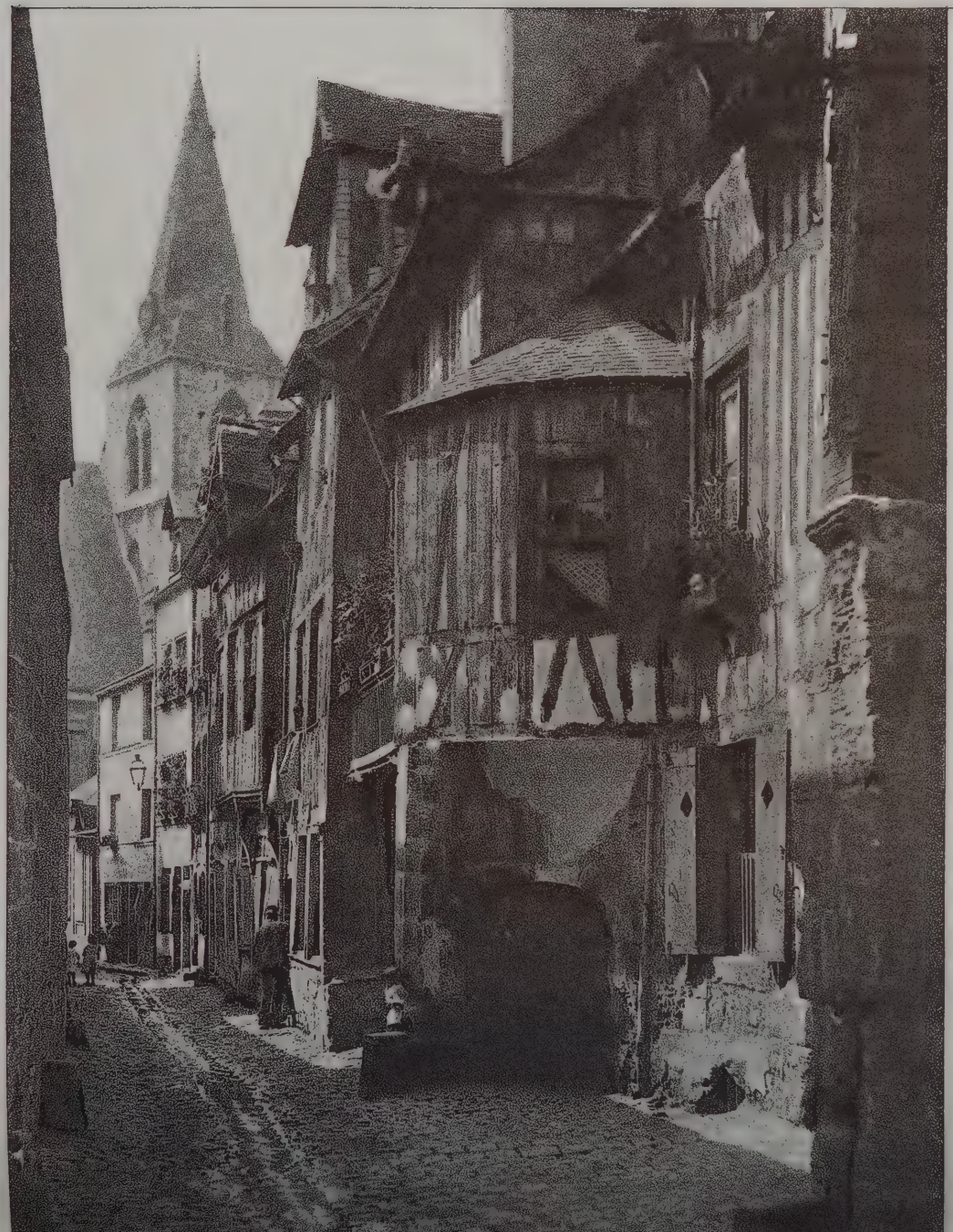
— GROUND PLAN —



— 1ST FLOOR PLAN —

Scale 10 0 10 20 30 40 50 Feet

"PHOTO-TINT," by James Akerman, 6, Queen Square, London, W.C.







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HE BUILDING NEWS
AND ENGINEERING JOURNAL.
VOL. LXI.—No. 1922.
FRIDAY, NOVEMBER 6, 1891.

ASYLUM PLANNING.

ITH the exception of works on hospital construction, which in several im-tant particulars involve principles of ign that are equally necessary for lums, we have scarcely any treatises ich give information about this latter d of building. No doubt this want is tly owing to the experimental stage ough which asylum construction is pass-, and the very little knowledge of build- possessed by those who have made ntal diseases a special study, for to be e to lay down reliable principles for build-s of this character, it is necessary that the hor should not only be well acquainted h the mental condition and requirements insane patients, but be competent to ody them in a concrete form, and with nical knowledge of building. Very combine the requirements of hygiene, inistration, and structure. Till within last few years the construction of hos-ls was little known outside the circle of erts, because only those acquainted with principles of hygiene and administration ld properly deal with the subject, and same combination of attainments is essary in discussing asylums.

he main difference between a hospital an asylum for the insane has to be t in view. The former has to provide a large number of patients who have to p their beds; the dormitories must be modious, as a great many are put in one n; but in the asylum the day-room omes the most necessary provision, and sleeping accommodation must be largely ined by single-bedded rooms. This re-ement renders the planning of an um more difficult: a large portion of area of each block has to be ropriated to single bedrooms, and e have to be arranged so as to afford supervision and ready access to a mon day-room. For the purpose of architect, the subject may be considered er the following heads: 1, the principle rrangement of the blocks; 2, the plan- of each block as a unit in the design; ne administrative department and other ils. Our object now is not to enter into of those questions with any methodical pleteness, but to draw attention to a few ne essentials. Recent buildings of this s have shown a variety of plan, from a ple linear distribution of the blocks to drangular and the broad-arrow forms. w recent asylums have been arranged uadrangles, with the main blocks facing h, the end blocks east and west, and the inistration block on the north side. It serted by competent authorities that this llelogramic disposition of the blocks its of easy supervision, and the whole of uildings can be brought together in a pact form. Another modern development sylum planning is that in which the ks all arranged in *échelon*, that is, step- the whole arrangement resembling with a centre and two oblique arms or s or a broad arrow. Many large ms have been built on this form; but ctions have been urged against it, one that supervision and control are more ult. The *rationale* of this plan is that ables the blocks to be arranged economi- on the ground at the same time as it s each block to obtain the right aspect ut interference with those behind it. recently-erected Claybury Asylum, Essex, illustrates this principle. It is being built for 2,000 patients—1,200 females and 800 males—the former are provided in blocks on the east side, and the males on that of the west, and these blocks are arranged in *échelon*, that is, along the outer sides of oblique corridors. The chief point is to obtain easy access from either the male or female sides, or wings as we may call them, with the administrative offices in the centre. To accomplish this, it is necessary that there should be a corridor across from each wing to the administration block, about midway between the two ends of each wing, the areas so cut off from the sloping wings, and the central block being used as airing-yards, as in many recent asylums. One authority, Dr. Richard Greene, the medical superintendent of the Berry Wood Asylum, Northampton, in a useful paper read before the late International Congress of Hygiene, describes five ways in which the blocks may be arranged. First, the blocks may be placed on either side of a straight corridor of communication; second, they may be disposed in the broad-arrow form. Here the straight corridor is bent at its centre, and the blocks arranged in *échelon* with the administration-block at the junction. Third, they may be arranged in the form of the letter H, the blocks being attached to the free sides of the letter—an objectionable form; fourth, they may be arranged in quadrangles or parallelograms, the important blocks facing due south, and the other blocks having their ends south, and their sides east or west, the administration portion being to the north. Fifth, arranged on the horse-shoe form of corridor, the blocks placed round the outer edge.

Of these several forms Dr. Greene appears to give preference to the first, or "linear" arrangement, if not too strictly interpreted, the less important wards being placed in *échelon*, and to the quadrangular and horse-shoe arrangements; of the last of which, he says it is probable that this principle will be developed into the best plan of all. With regard to the *échelon* arrangement the same author thinks it is better adapted for a hospital than an asylum, as in large asylums the difficulty of supervision is great, and he thinks it not suitable for asylums exceeding 300 beds. Of course, every architect must use his own discretion; a great deal will depend on the shape and aspect of the site and the fall of the ground, as to which distribution is the most desirable. Many excellent buildings have been planned on the "linear" in combination with the *échelon* principle, where the site is extensive and other considerations are favourable. We believe the latter plan is a good one as regards the essentials of aspect, light, and air to each ward or pavilion, and provided also that easy reach of the administrative centre is kept in view.

Having decided upon the general arrangement, the next and equally important thought is: What is the best form of block? Now, both general arrangement and plan of block should be studied simultaneously—in fact, the idea of the "block" as the unit must be in the architect's mind while he is thinking of the distribution on the site. The block is, then, a very important consideration is asylum planning. It is generally agreed by all authorities that these should not, if possible, be more than two stories in height, and many think a one-story building is the most efficacious, as Dr. Greene observed at the Congress. He says: "I have no hesitation in stating that an asylum should never exceed two stories in height, and if any part of an asylum be three stories in height, the whole building may be described as faulty and unsuitable." As regards staff management, comfort of patients, and carrying out principles of modern hygiene, he observes, a one-story building is the best. We have no reason to dispute this fact; but circumstances and the value of land would render single-story asylums almost impossible. On this point, however, it is right to mention that Dr. Greene observes a one-story building for 500 or 800 patients would not require more ground-space than one of two stories for 1,000 or 1,600 patients, and many of our public asylums exceed the latter number. He thinks that no asylum should have more than 800 beds, and we believe those who have experience of the working of these institutions would agree to such a limit. In plan, the patients' blocks may consist simply of a parallelogram, with the attendants' and single rooms ranged along the back wall, and the remaining portion towards the south, forming a wide corridor or day-room, with bay windows. In the Plymouth Asylum, designed by Messrs. Hine and Odgers, of which we gave a ground-plan (March 7, 1890), this kind of block is used. There is one on each side of the central block, devoted to recent and acute cases. Let us take one of these. Nearest the centre block is a spacious entrance lobby, one end opening into the dining and recreation hall, which forms a projecting centre block in the front, and the other end of lobby opens into a wide corridor, lighted by windows to the south, with single rooms behind. A bay window, or recess, projects from the centre of the corridor. At the other end of patients' block is a day-room at right angles, making a slightly projecting wing corresponding to the lobby entrance, and a dormitory with single and attendants' rooms forms a receding wing. A little in rear of this comes a second block used as an infirmary ward, having a similar arrangement of corridor, with single rooms and day-rooms, and an epileptic ward or dormitory at right angles, so that we get something like the *échelon* plan. The other side of centre administration is a repeat. The lavatory, bath-room, and closets together make an isolated building behind each block. Each block is of two stories, the elevation simply consisting of the bay window of corridor the end of day-room hipped as a wing, and the projecting lobby entrance at the other end corresponding. The large dormitories at the ends of each block have windows on each side. The male patients are located on the west side, and the female on the east; the axis of administrative building runs due north and south. To sum up, one block may be a parallelogram divided longitudinally, the front portion facing south, as a corridor for recreation, and the back portion towards the north be divided into single rooms with conveniences projecting behind. At right angles to this parallelogram, at one end is a dormitory, the south end of which is a day-room in range with the corridor. One merit of such a plan is that it places the day-room towards the south with ample windows, and the dormitory is made a retiring wing, parallel to or at right angles with the same, and this mode of setting back produces a kind of *échelon*. This corridor principle admits of a continuous day-room along the best front, and can be broken by large bays. For the sick and infirm patients, who are often bedridden, it is desirable to make the dormitory face the principal aspect, and to place the day and single rooms in a return wing running north and south. For acute cases, an agreeable aspect is, on the other hand, essential in the day-rooms, and the same remark applies to chronic cases. One good form of block is that of the letter ⌴, the lower part of which represents three day rooms, the end ones coming out a little as wings, with bay windows on each front, and the two sides would represent single rooms, with a centre corridor access. Each of these patients' blocks will include an attendant's room, placed at the end of every dormitory and day-room in an accessible position, a bath-room, lavatory, w.c.'s, store-room,

boot-room, ward scullery, slops and brushes, coals. In many large asylums the blocks for acute and chronic cases are of three stories. Other plans of blocks will suggest themselves to the architect; his main care will be to see that the day-rooms receive plenty of light and air, with cross ventilation for the dormitories. As regards size, the latter can be made large enough for 100 beds; but those which hold 20 or 30 beds are preferred. About one-fourth of the dormitory space may be appropriated for single rooms. In county asylums 600c.ft. is given to dormitory, and 480c.ft. to day-rooms, making 1,080ft. in all. The floor area is calculated at 50ft. for the dormitory, and 40ft. for the day-room, and this allows a height of 12ft.; but these are details to which we may again refer.

Five classes of patients have to be considered: the sick and infirm, acute cases, epileptic, chronic, and laundry patients. These have to be disposed in the most desirable manner. Recent and sick and infirm blocks are those which demand careful consideration and watchful attention, and should be located on the south side or near centre, whereas the chronic cases and epileptics may be in more retired positions. In large establishments, workshops for male, and laundry buildings and sewing-rooms for female inmates must be provided round one of the rear or north airing courts on either side; the sewing-room should be in connection with the laundry patients' block. The medical superintendent's house might be placed near the centre in front on one side of the chapel, which is often made to form a prominent building, on the axis of the administrative block on the south side. Corresponding to the medical superintendent's block may be the waiting and board-room, superintendent's offices forming an entrance block. On the upper floor accommodation for assistant medical offices. Attendants and nurses for both sexes must be provided for by blocks in convenient positions on both sides of the administration centre buildings, and they may face the airing courts. Nurses and attendants ought to have ready access to the central and main corridors, with mess and day rooms and bed-rooms on the upper floor. It is needless to say that a complete plan ought to have a large recreation hall in the main administrative block, with a serving room communicating, with the kitchen on the north, and a scullery. There should be a stage fitted up at one end of the hall, with corridor entrances. The usual hospital arrangement of kitchen and offices may be followed in the administrative block. Many very complete buildings have been erected during the last twenty-five years for the insane poor. They are often situated in the most beautiful parts of the country, and the grounds are often laid out in the most attractive manner. On the planning and general distribution of the blocks very much depends. We must leave the consideration of details to another opportunity.

INSTITUTE OF PAINTERS IN OIL COLOURS.

SMALL and unimportant pictures may sometimes swamp a good collection, and this thought will no doubt be that of many who view the exhibition of oil pictures at the Institute in Piccadilly. There is much, however, on the walls that sufficiently counterbalance this idea; the landscapes are numerous and strong, while of the subjects of the *genre* class, many examples will meet with admirers. In the west gallery are hung several clever pictures of the latter kind. "Starting the Race" (118), by John White, is full of that natural English village life which is always popular with those who regard painting as a mode of transcribing closely and observantly. The sailor, whose jocular face and hand laden with oranges bespeak play, has collected a few village urchins together, and is about to witness a scramble. Three sturdy little fellows are standing in line ready to run, while one is tying up his boots. A group of village maidens at the pump, others at their doors, are merrily looking on. The bright, clean, plastered cottages, and the drawing and colour generally, make up a pleasant picture full of expression. T. B. Kennington's "Mischief," three bewitching maidens (108), is a study which was the least expected from the painter's known *penchant* for the gloomier features of life. The young ladies are in the best of spirits, and are, no doubt, plotting some little trick at the expense of someone. Their mischievousness is written in all three faces, which are all of the dimpled, "sweet-seventeen" type, decidedly pretty, especially the expressions on the visible centre and right-hand countenances. The colour and light are admirable. From this playful trio we may turn to Walter J. Cox's "Discharged," a picture of pathetic interest, such as we might have looked for from the last painter. The dejected husband seated in a chair, his head bowed down, his bag on the floor; the heart-broken wife at the fireplace, and the unconcern of the children enjoying their meal, are truthfully painted with a keen insight into the humbler phases of life. A figure subject of much power is Miss Elizabeth Nourse's "So dear a life your arms enfold"—a mother with her child in her arms, and cradle at side. A contrast is presented by Miss Henrietta Rae's "Memories," in which a young lady in evening attire sits at the piano touching the keys awakening a chord of reminiscences. The light of day and the lamp light seem to be struggling for mastery; the latter illumines the figure with a warm glow, which contrasts with the cold blue shadows around. The painter has succeeded in investing her subject with a glamour of its own; there is a fascinating charm in the elegant figure and the prismatic hues of the colouring, but the glass spoils the effect. C. N. Kennedy's "Close Hauled" (43) is a dexterous piece of handling and colour; the seaswept vessel, with the man at helm clutching for life's sake at his post, is masterly. Of less importance are the pretty little works of "Awake and Asleep," a child with cat and doll (13), by Carlton A. Smith; Thos. Davidson's "Heathcliffe and Catharine Linton" (55). Solomon J. Solomon (87) has a clearly-painted and modelled recumbent figure of a man's head and shoulders, with half-light. The face, which is upturned, is not pleasant. One of the most classically conceived subjects is "Pythia" (97), by the Hon. John Collier. The girl oracle, clad in green and dark red draperies, holds a bronze bowl in one hand and a twig of evergreen in the other, and, seated on her tripod, is inhaling the vapour which arises from a chasm in the ground. Her eyes are closed. The painter has thrown a spell of mysticism round the subject, which is treated with much skill and power. Other figure subjects include a beautiful angelic face, or half-figure, of a young maiden holding in her hand a cross, by William Wontner (129), full of spirituality and expression; and a nice study of the side face of a girl, "Phyllis," by T. Cowper, who also sends "Daphne" (1), another study of heads.

The landscapes are numerous. E. M. Wimperis, at the end of room, exhibits "A Yorkshire Moor" (54), which for breadth, freshness, and colour is one of the strongest. The stormy clouds and the broken ground, intersected by watercourses and stunted herbage, is vigorous and truthfully painted. Two other landscapes, "Going to the Peat Bog" (440) and "A Moorland Road" (567), are equally breezy and strong. Yeend King's "Mill Pool" (81) has the fault of over-greenness and lack of shadow. James E. Grace in "Untrodden Ways," is a large conspicuous example of half moss and wo land, to which we may add Chas. J. Lew "Old Fishing Village" (3), full of hazy s light; J. Clayton Adams's study of g on a common (4); W. W. Caffyn's "Br and Wild Flowers" (23); Edgar Barcl "Ring-a-Ring of Roses" (20); D Murray's "View of the Rother" (1 Alf. W. Williams's "Ewhurst, from L Hill, Surrey." J. L. Pickering's "Heart Oak," a road wending through a wood, a heavily laden timber waggon making way through a pool, is finely painted much power and feeling. Alfred Ea "A Dewy Morning" (147) is ideal, cha ing in its grey misty atmosphere; and Hughes Stanton's "Struggling Light" is also clever as a depiction of mist light, contrasting with John R. R strong and hard colour, as in 92 and Seascape and coast are well represented the luminous sea, glistening and fresh C. Napier Hemy (167).

A number of small canvases are so what distracting in the Central Gall Among the best of them are T. B. Kenn ton's study of child with a doll (Walter Tyndale's "The Holy Viatic (184); Frank Dadd's "Thirdly and Las —an old-fashioned clergyman in Ge gown chatting to a sportsman in hun scarlet; John H. Lomax's interior (1 G. G. Kilburne's "Sauve qui Peut!" (2 Mrs. J. T. Watts's "Old Farm, Susse Leopold Rivers's "The End of I (220); and Thos. Huson's strong-colo landscape (216). The President, Sir J D. Linton, has two figure-subjects, pying usual positions. "Jessica" is a dark style of beauty, presumably lock's daughter, of course exquisi finish, her corsage jewelled with p and in subdued colours. What is in "The White Rabbit" (358) cannot say, except that it is lessly painted in the details and text the setting of the little girl and her is simple and rather lugubrious; but is a sympathetic interest in the work. sombre, gloomy key a protest agains sensational school of colour? Much in sentiment and colour is C. T. Garl "A Mute Appeal," a little girl ami luxurious accompaniments of a dessert with her dogs. One of the most ple figure subjects is "L'Enfant de Mari Miss Helen H. Hatton (238)—colou expression both agreeable. Several *genre* subjects have rather too much engraving-print-seller motive. Such example, is J. Haynes Williams's cleve ture, "First of April," an 18th centur at a garden gate, who has evidently "fooled" by the young ladies who are ing at him over the wall. Watch in he is anxious, a basket of choice flowe on the ground. Also Edgar Brundy's picture of an old gentleman prepari punch bowl, while a party of gentleme side table are chatting (344). More s as works of art are E. Blair Leig "Society in Solitude" (349), a delig drawn and painted young girl seate window recess or seat reading. The and texture of the dress is inin rendered. "His Birthday," a lady arr flowers in a vase on a handsome loo by Roland Holyoake (372); and a sma delicately-finished subject, "Cave C by W. Paul Davis (290), which for tec is unsurpassed, as in the reflected l the carved cabinet, and the graceful of young lady entering through the casement. Nice pastoral feeling is T. Hope McLachlan's "Solitude" (29 a sense of touching reality in John delightful piece of sea painting, a sea and jetty, "The Last In" (25 landscapes, Frank Walton (239) ser of the best, which is favoured by a

sition; James Orrock has a small study "Windmill," in his own vigorous style; win Hayes's "View of Granton Har-ur" (355); Thos. C. S. Benham's "Breezy eather" (377); R. Thorne Waite's "Hay-d" (362), are other works of broad ndling, tone, and colour. "Entre Nous" a clever bit of *genre* of the popular kind; l so especially is J. C. Dollman's facetious l skilfully-painted "skit" on seaside life, a Malade Imaginaire" (399), out of a st of other works of a similar vein, in ich dexterous painting is bestowed on y commonplace incidents without motive r humour.

As a composition, St. George Hare's 'syche Enslaved by Venus" (477) must be nked among the very few works repre-ting classical myth or legend. "The tered Soul Enslaved by Love" is a utifully half-draped model, her hands ered by links over her head, and having expression of helpless despair. The nical merits are also of a high order. ury J. Stock, in "Sleep and Twilight," sought to allegorise the theme in n and colour—we cannot say unsuccess-y. The purple shadows and drapery are ng, and unpleasantly so, but there is un-bted conceptive power. Many of the t works are to be seen in the east gallery. single out James Clark's Scriptural ire-subject of Leah and Rachel in the tre, for its treatment and colour; the large trait by S. E. Waller, representing amon," winner of the House of Com-ns Steeplechase Stakes, with portraits of . Elliott Lees and his wife, who is at a dow feeding the favourite; Arthur ker's large picture, "Fire Fancies" (536) girl seated opposite a fire receiving the glow, the other parts of the room in shadows, a clever study of firelight; H. Burr's clever, well-lighted picture, mpanions"—a little girl amusing her-with her chickens and dog. Fred. G. man's large landscape, the "Mill am," disappoints as much from its hy colour as its high point of sight, gh the landscape, with its tiled mill and ndering river, taken from a hill, has many uresque elements. The picture is spoilt the glass over it. E. M. Wimperis's at Bog" we have noticed, and we pass to T. Hope McLachlan's vigorous and ic landscape in rich brown, "A Wind the Hill," in which he has skilfully ht the impression of a stormy height sed to tempestuous blasts. Joseph ght's "On the Welsh Coast" (469), a stone cliff; Chas. J. Lewis's "Estuary," early-grey tones (441); Claude Haye's unset through a dark pine wood (513); umonier's view in Sussex; and Edwin e's "Fishing-Boats off Guernsey" (519) pictures that atone for much indifferent . No. 547, "The Honeymoon," by J. nes Williams, is exquisite in finish and nical qualities. The white satin dress te fair bride makes a happy contrast to handsome-faced young husband in silk holding a bouquet of flowers, both ng into one another's faces in the most ome way. James Orrock's "Sand " (555) is full of breeziness and strength. dark, cloudy landscape of J. L. Picker-(533) has also power and breadth, while nother and more sentimentnl mood is 2. Johnson's delightful piece of quiet try life, "The Village Smithy" (541); W. Gilbert Foster's "Breath of Spring," nich the woodland is feelingly painted. e works of characteristic qualities by ate Keely Halswelle are in the col-n.

CLIENTS' ALTERATIONS.

what extent an architect's patience should be allowed to be tried in the ration of plans, mainly owing to the change and vacillation of his client's mind, is not defined by any statute or legal decision; but the very frequent forbearance which has to be exercised by the practitioner in meeting the views of a crotchetty client, who has very uncertain ideas of what he wants, calls for some measure of reparation. Demands made on the architect's time are frequently out of all proportion to the magnitude or importance of the work, and if they were charged for, as they ought to be, by time, the professional fees would be regarded as exorbitant. The client who engages an architect on some paltry building is often the most troublesome and exacting; he expects him to be at his beck and call at any moment of the day, to be ready to discuss matters of trivial consequence, or to inspect goods and wares whenever they are required. Unfortunately, the architect has no remedy but to keep out of the way, or to make a charge that would alarm his client. Another, and worse, tax is to have to do work for a client who has not made up his mind. Sketches and plans are prepared and approved, only to be set aside by some fresh idea, just as everything is in readiness for receiving tenders. New designs are prepared, perhaps again to be altered, and a new set of tenders obtained. The amount is higher than was intended, and reductions are made, and after the works are completed, the employer refuses to pay for the first set of designs, saying that they were of no use to him, without in the least considering that the architect's labour has been expended, and that, therefore, he is entitled to some remuneration. Cases of this sort are very common.

A recent disagreement of this sort came before the Exeter Quarter Sessions the other day. An architect of that city (Mr. A. H. Wills) prepared plans for an extension of premises, which plans were approved and accepted. Unfortunately, tenders could not be obtained owing to a local strike in the building trade. Some months elapsed, and the defendant instructed his architect to make sundry alterations, which were so numerous as to render it necessary to make almost entirely new plans, specifications, and quantities. Fresh tenders were obtained, and one was provisionally accepted after reductions had been made. After this the defendant changed his mind, and the scheme was abandoned, it being alleged on his behalf that the plaintiff exceeded his instructions in obtaining fresh tenders. The jury returned a verdict for the architect for the sum and costs. We have no particulars as to what reductions were made to the plans, or evidence to show whether these were owing to the client's demands or the architect's provisions; but from the verdict given we may conclude that the reductions were mainly owing to the new requirements made by the client. The circumstances of this case are not unusual. The first set of plans are prepared as in this case, and a strike or something occurs to interfere with the carrying out of the design, but no fault of the architect is alleged. During a short interval the client changes his mind: he sees something he likes better, or a suggestion of someone makes him inclined to depart from his original scheme. Several alterations are ordered to the plans, which cannot be made without recasting the whole plan. Is it reasonable for the client to expect his architect to forego all the previous labour entailed upon him by these alterations? And yet the defendant expected him to do so, and to charge nothing for the original set. The abandonment of the scheme is not the architect's fault, if he has followed his client's instructions, and has not unnecessarily incurred expense. This question of making alterations is one upon which some professional decision is required. How many times is an architect to have to submit to these rearrangements and fresh instructions? If he agrees to make certain alterations of a trivial kind, is he to be a second time called upon to make other alterations? Where are they to stop? Certainly fresh instructions which necessitate the preparation of new plans and elevations ought to be considered a second design, and charged for accordingly. A few alterations such as the lengthening or widening of a room, the addition of a bay window, an alteration to a staircase, might be made in a set of plans by a little erasure or sponging out; but when they are such as to entail the redrawing of the plans, elevations, and sections, at least the time and labour ought to be paid for. When the alterations demand a remodelling of the plan, the work should in reason be considered a new design, for which another 2½ per cent. can be charged. We think in any schedule of fees, some limit ought to be defined as to what ordinary alterations are, and a fair charge by time made. These would be such alterations as the client might suggest before the pencil plans are inked in and the quantities finished. After the drawings were inked in and specifications and quantities prepared, any alterations made ought in fairness be charged at a higher rate or as a second design. The frequent disagreements arising from this one cause ought to be a lesson to architects. They could agree to adopt a line of practice that would effectually prevent disputes. Distinct terms for making alterations could be made with a client at the onset, and be introduced in a clause in an agreement between them, a document which, as we have said before, ought to be drawn up and signed before the architect commences his labours, and in which the terms of remuneration, mode of payment, powers of the architect as a general agent, retention of plans at completion, and other matters may be settled.

THE ARCHITECTURAL ASSOCIATION.

THE second ordinary meeting for the present session was held on Friday evening, the President, Mr. F. T. Baggallay, in the chair. The following fifty-three gentlemen were elected as members:—Messrs. J. Richardson, A. R. Hill, F. H. Mercer, R. A. V. Harrison, C. O. Nelson, W. C. Bigg, D. Horn, F. A. Whitwell, W. Hodgers, W. C. Thomas, W. D. Colmer, C. E. Hutchinson, W. Carpenter, A. St. Quintin, C. S. Joseph, T. Henwood, F. D. Clapham, G. E. Withers, A. M. Watson, J. Blyth, S. E. Knott, F. S. Hammond, E. Tylee, T. Ballantine, R. H. E. Hill, R. Angell, R. F. Summers, R. E. Walton, A. Gilbertson, E. W. Lees, W. K. Shirley, A. H. Hawkins, A. J. Johnson, F. A. Meakin, H. V. C. Smith, C. Kensington, A. E. Hodson, W. C. Wood, O. F. Stenning, R. P. Griffiths, T. W. Dinwiddy, E. S. Austen, B. C. Law, E. G. Simpson, M. Zimmermann, W. J. Childs, T. J. Fox, N. W. Harrison, H. P. G. Maull, R. Robertson, E. Whittle, G. C. Beresford, L. Shuffrey, and H. W. Kerr.

The PRESIDENT announced that the committee had, under the rules, nominated a member to fill the office of vice-president, rendered vacant by the resignation of Mr. F. R. Farrow, who had accepted office as a paid lecturer. The committee had very carefully considered the matter, and they felt that, having regard to the great amount of work done for the Association by Mr. Farrow, and the value of his services, without committing themselves to action in the future, they could not do otherwise than nominate Mr. Farrow for the vacancy. (Applause.) The election would take place that day fortnight.

PITFALLS ON COMMENCING PRACTICE.

Mr. W. H. BIDLAKE, M.A., read an interesting paper on this subject. The first great question with the newly-hatched is, he remarked, to get a client. You must have put up a house for somebody before anyone will trust you to put up a house. The wisest course is not to commence until you have secured your first job from an old family friend, or won it in competition. Dead charges must be kept as low as possible. Better to share an office in a good neighbourhood than have a garret to yourself up a break-neck stair-

case; and "taking in washing" for other architects as evening work will pay office expenses better than going to the theatre. When at last a client calls, first impressions are everything; personal dress and manner, evidence of order and system in the office, readiness to grasp ideas, and that indescribable air of confidence in self, which wins the confidence of others. Above all things, beware of unpunctuality; every excuse for it falls flat. It is well to get to know something about your client. Had I done so on one occasion, I should have avoided a pitfall. For my client got more than I did. He got five years' penal servitude, and I only got my expenses as a witness, less 4s. 6d. for the warrant; and with the balance I bought my experience. After giving his ideas, a client always says he has very little money to spend, and wants the work done as cheaply as possible. The reason he says this is because there is a deep public distrust of architects about money matters. He would not be satisfied if you took him at his word. What he requires is his full money's worth in arrangement, construction, material, and design. At the same time, very clearly understand his meaning on the money question, and remember "Cutler v. North." A building enterprise is quite a novelty to him, and he comes to an architect to be told how to set about it, and trusts him to see him through with it without either loss or embarassment. His ideas are often very vague and unpractical. You have to help him to define what he wants. Sometimes you will have to save him from himself, to even assume a kind of authority over him, and say: "That would not do; this must be so." He will come with a pet idea which he has been nursing with pride. You see at once the impractibility of it; but don't contradict him. You may offend, but you will not convince. Best to conciliate with a compliment or a graceful remark, before saying anything unacceptable. If you take his idea, and it is unsuccessful, he will forget its parentage and reproach you with it; or, he will say, and rightly so, 'I came to you, as a specialist, to be advised.' If, on the other hand, his idea is successful, do not be surprised if he takes credit for the whole work, plan, design, and all. Have a distinct understanding about your personal retainer, and the scale of remuneration. If the arrangement is in any way unusual, have its limits well defined. Endorse any verbal agreement by a letter, and keep a copy of it. Some architects regard their clients with feeling akin to antagonism. This is a most dangerous state of mind to begin with, and fruitful of evil. Your relationship with your client is intimate and confidential. Make him your friend. Be perfectly open with him, and make him conversant with all the steps of the undertaking. Throw yourself with enthusiasm into his interests. Forget that you are working for a definite remuneration. If you are doubtful as to how to act on any occasion, imagine yourself to be your client for the time being, and, whatever befalls, it would be suicidal to quarrel with him. If first impressions are important, parting impression are still more so. Always part friends. You will avoid a difficulty if you explain to him very clearly the question of "quantities," the extra $1\frac{1}{2}$ or 2 per cent. will give him a shock at first; for, in all probability, he will be quite ignorant of the custom. Let him understand that you employ a surveyor as his agent; that if the contract is executed the contractor will pay the surveyor, but that if it is not executed it will devolve upon him to do so. Take care you do not entangle your client with the authorities or his neighbours. Look well to the question of street frontages and party-walls, and be very cautious with underpinning. If any bill for damage is presented, he will be very angry with someone, if only for the relief of his feelings, and that someone will be his architect. The question of "ancient lights" presents a peculiar difficulty in the light of a recent legal decision. The architect is placed on the horns of a dilemma. He may either advise adjoining owners of the extent of his building, and so bring various exacting claims upon his client, which would otherwise never have been preferred, or he may ignore the question of "ancient lights" and incur the risk of having to mutilate the building to accommodate them, when it is more or less complete, with the certainty of a good quarrel with his client, and the possibility of an action by the latter to recover damages. The best thing to do is to discuss the matter very fully with the client, and allow the responsibility to rest with him. In fact, one-half the pitfalls into which the architect stumbles arises from the want of a full discussion and a clear understanding. Mere verbal agreements are often worse than useless—the two disputants are sure to have different versions of the same interview. Have everything in black and white. Do not trust to the honour of your friend or client in a question of moment, for however honourable he may be, you are sure to quarrel with him in the end. No, endorse verbal agreements by a letter and keep a copy, and enter an account of the interview, or any important particular, into your diary. And a diary, by the way, should be an indispensable adjunct of every office. Letter-writing is either a virtue or a vice. It is a good servant and a bad master. When the writer is not known personally, his character is implied from his letter. Frequently letter-writing keeps an architect in touch with his surroundings, and a client is flattered by receiving a letter from time to time, and feels assured of his architect's interest in the work. But, remember, that, when posted, a letter is beyond recall, and—for good or evil—you are wedded to the opinions expressed in it. I try myself to get into the habit of regarding the possibility of every business letter being brought into a court of law. Clients are always in a hurry to commence work. Do not encourage it. Preliminary drawings are not to be dashed off against time, as you commit yourself by them to the broad lines of your design. Prettily-got-up sketch-drawings are a delusion and a snare. You are gratuitously preparing your client for disappointment. And, as for an estimate of cost, it is like an infernal-machine, and is not to be handled with light-hearted carelessness. Do not commit yourself to figures when you can help it; but, if you do, be sure your figures are correct. You may depend upon it you will be held to them afterwards. Do not court responsibility; it is a golden rule for an architect, and beware of lady clients. Precautions desirable with a client become imperative with a committee. It has been observed that committees and corporate bodies are sometimes capable of meanness and questionable transactions which each individual member would repudiate in private life. An architect must study men as well as materials, for he has to do with both. The committee meeting is a field for his tact, and it is often required. Meetings of educated business men are usually agreeable and methodical, but less educated men rush into windy talkativeness and open contention. Let the greengrocer have his talk out; it is his first opportunity of expressing his opinions to a wider circle than his own fireside. But do not descend to the fray. Do not commit yourself until the fight is over; and then, in the lull after the storm, your words will break upon the stillness with a clear and incisive authority. A committee usually consists of one who leads and the rest who follow, and it is the leader, of course, that the architect has chiefly to reckon with. At the same time, he must hold himself perfectly independent. Once let an architect sacrifice his independence, and pitfalls will yawn around him on all sides. Do not receive any instructions whatever from an individual member of a committee unless you have proof of his being officially authorised to give them; and especially remember that nothing but the corporate seal will bind a corporation. If you are acting for a body of men, you must manifestly be instructed by them as a whole: the majority may repudiate the opinions of the individual, and throw the responsibility on you for having listened to them. Do not work for charity. Bricks cost money, so must brains. Besides, man cannot appreciate what he does not pay for. Neither make your remuneration subject to approval, or to the correctness of your estimate of cost. You may find, to your dismay, that, although you have prepared three sets of drawings, or any number of sets, and have spent endless trouble, the mere "not approved" of your client will annul all claim for remuneration. But, as you have voluntarily submitted to the arrangement, you have only yourself to blame. To the architect who has started in practice with few friends and less capital there comes a pinch which tests his fibre. It is just then that he is tempted to work "for charity," and on approval, in the hopes of getting a connection, and there will never be wanting those who will take advantage of his embarrassment, Accepting trade discounts and less remuneration than the legitimate 5 per c compromises his independence, and will be a albatross round his neck for all his future ca With regard to the former, it seems to me b to have nothing to do with them, even if client fully understands their nature, and acc the benefit of them himself. But on this p opinions differ. As for building speculat touch not the unclean thing. Second- solicitors and impecunious builders are the combination for that. With regard to the w ing drawings, it is a mistake to make them showy or artistic. They are only a means t end, and the end is that the building sha worked out accurately from them. It is a mistake to show too much detail on the eig scale drawings. At the same time, they be thoroughly thought out and worked ou else the architect will find himself in the de grip of "extras." If a thing will not work satisfactorily on the drawings, it is a fallac suppose it will come right in execution; an less ambiguous the drawings are, and the they are left to the interpretation of the archi the less disputing there will be with the bui Do not accept the accuracy of plans or on the assurance of other people. Plot out site for yourself; and do not try conclu with the authorities. Sometimes one is tem to sacrifice convenience to design. It is a pi Beware in time. Either rearrange the par that the two do not clash, or else face the in able at once. If you do neither, some gh deformity will be arranged by your clie remedy the inconvenience. And who i blame? If you build your chimney so low it smokes, be prepared for the deformity cowl. Be sure of your construction. Yo responsible for it. It is, of course, false eco to stint the strength or stability of the cons tion for the sake of ornamental character. house-planning, a wise architect takes the l into his confidence. Their chief requiremen plenty of cupboard-room, well-lighted ste the cellar, and a kitchen on the ground floor. sure and have plenty of head-room for stairc On one of your visits of inspection the for will come up and say, "If you please, w only get 6ft. head-room for the back st we've tried it all manner of ways." And then the client walks up from behind and "What's the matter?" Single steps single winders are dangerous, and are gen signs of thoughtlessness. Warm the stai or the house will never be free from drau and if there is an unusually large surfa window in a sitting-room, such as a bay win the cold radiation of the glass will always duce draughts if no special arrangement of water pipes is introduced. Shut off the ki offices from the rest of the house, and well late them, or the smell of cooking will pe the house. If the journey from the kitchen dining-room is long or circuitous the dinne be cold. Place the bath-room over an portant room, so that if the bath overflow great amount of damage will be done, an precautions against water in the cellar. sider the position of the furniture in each room, and treat domestic servants as h beings, worthy of more comfort than a che garret affords. If an architect is to avoid e a clear, concise, and comprehensive specifi is an absolute necessity; and it seems to m the growing practice of intrusting it to a qu surveyor is very much to be deprecated architect has not thoroughly thought o building until he has written the specifi for it. And when he has done that with care, although not necessary with great el tion, he feels a sense of repose and confide the execution of the work, not to be at otherwise. In a specification vague ter expensive items. To suppose a builder will a better and more costly method of exec unless you specify it, is to be too flatter human nature; and to suppose that, even do specify it, he will execute it so unless y that it is done, is to show some ignorance builder-nature in particular. Of course, are exceptions to every rule. Do not try e ments of new materials and inventions others do that. If you do it, it will pr be at the cost of your client's pocket an own reputation. And, above all, allo contingencies. If a thing is absolutel fect, except under certain circumstances, circumstances are bound to arise. the working drawings and specificatio

nplete, let your client have both to look ough. Better to make a modification even at eleventh hour than that your client should be satisfied, or that the alteration should be de after the contract is signed. Obtain an ex-ssion of his approval if possible; it may help relieve you of responsibility. In connection h the actual building there are a hundred sibilities of oversight, which may lead to con-uences most disastrous to the architect's utation, but which a little care and attention letails might have avoided. Undoubtedly, the nitect's position is a difficult one. Many are operations in a building enterprise, and many the hands engaged upon it. Each is liable to or or neglect, and, however attentive the nitect may be, it is impossible for him to be ays inspecting the building. And so matters rror or neglect become covered up and ob-ed in his absence, even if they are not fully hidden from him. Yet it is he, and he ie, who must bear the responsibility before public. And the public will not stop to in-e into the difficulties of his position. "What he good of having an architect?" will be contemptuous question. And, although his ding is admittedly excellent in plan, design, execution, yet all the good that he has will not be remembered to him, if a chimney kes, or the water comes into the cellar. This be unjust, but it is a matter of experience. ehoves the architect, therefore, to pay minute ntion to the details of construction, arrange-t, ventilation, and the like, and to be very he is using good materials. If he has not good materials, time and weather will soon ose the fact to the public. A correct judge-t of materials can only come by experience, even the most experienced are sometimes at . It is, therefore, all the more necessary to e the question one of close study. It is a ortune that the education of an architect not comprise a study of the distinction be-n good and bad material. Might not a eum of common building materials, good and be a useful aid in the new educational me of this association? Do not condemn the rial unless you are sure of your judgment. ttle friendly consultation, in private, with a of experience will be very valuable. ough it is folly to allow bad material, it is ble to be hypercritical. An architect, like lfold justice, must hold the scales equal een builder and client. It is a good rule to ine the builder present in all your dealings the client, and *vice versâ*. Be sure of your lations. Test the ground yourself. If you to a soft part, have it cut out, and eted, or the brickwork carried down; step the brickwork from the higher wer level. See that the footings are in, ave a greater spread where greater weight o be carried. Beware of drawing off water the foundations in sandy soils. It will be ate to think of these matters when the s of unequal settlement have appeared. the same precautions with drains. Have tested in your presence. If they pass a building, arch the walls over them; if pass over new-made ground, carry them on ete or on brick foundations. See that these s are done, and do not take the builder's ance. Be sure that the damp-course is in, se that the brickwork is built solid round all s-flues in hollow walls. If smoke once finds ty into the hollow space, it will be impossible d the leakage, and endless annoyance to the may be the result. Examine every fire-to see that joists and purlins are not built the flues or too near them. Tie in wall-so that the roof will have no tendency to l. See that roof principals have sufficient ient, or efficient tie-rods. Take care that ason has not cut the beds of a column v in order to obtain a fine joint, or the will fracture. If you have to argue your-to the assurance that a beam is strong h, you may take it that your judgment it is not; therefore, make it stronger. the roof-tiles are being laid, take care ne mortar-bedding does not extend too far If it does, water will be conveyed gh the roof and drip on to the ceilings, ne client will write a letter to his architect nting him with the fact. The roof will to be stripped. I do not think there is ther remedy. Take great precaution in ing the interspaces between the rafters urch roofs, and allow a good air-space between the laths and tile-battens. Beware of internal gutters, and pockets where snow can accumulate. Carry chimneys well up, and give them some mass and breadth. The modern chimney is distinguished by its leanness. Guard against water soaking through brick sills, or driving under casements, or condensed moisture dropping from skylights. See that water-pipes are not exposed to frost, and do not trust anyone but a thoroughly competent man to fix the kitchen cylinder: otherwise you will get into hot-water. Keep the gas-meter away from any source of heat, or the water will distil into the pipes, and there will not be a steady gas-flame in the house. Do not lay a wood-block floor until the concrete bed is quite dry, or the wood will swell and the floor "rise." And, above all things, beware of dry-rot. For a man who has spent a considerable sum in building a house to have to spend another £50 on new floors and skirtings before he can inhabit it, will prove a great strain on his composure; and it would be an even greater trial to a committee, which had collected its scanty funds with the greatest difficulty, to see them swallowed up by this seven-headed hydra without a murmur against the architect. Do not trust to caretakers: they are not to be supposed to have any intelligence. They will stop up the ventilation openings if they can, or else allow them to get choked with dirt. For the sake of your own reputation, urge your client or committee to have a periodic examination of all such air-inlets, and of the under floor-space. The latter can be arranged by having movable floor-boards screwed down. You might also take similar precautions with regard to running the water out of heating coils on frosty nights, and also with regard to domestic servants letting soap, hair, and the like get into sink waste-pipes. I now come to what is, perhaps, the most frequent and insidious pitfall of all, the accumulation of "extras." It is almost impossible to avoid extras, to some extent; but there is a reasonable limit beyond which they must not pass. Contingencies often arise which it is impossible for an architect to foresee, and no reasonable client would object to extras for such, even though he did not like them. When, however, an architect, in order to improve his design, incurs a heavy extra for a modification in the plans which his client has approved, he incurs a serious responsibility, and he may find that he has to refund the cost of his indiscretion. It is the wisest course to keep your client fully aware of the extras as they arise, and to obtain his sanction first to all those that are not quite trivial. If possible, obtain an estimate of extra work beforehand, and submit it to your client for approval; and insert a clause in the contract that all extra work is to be valued at the same rate as that on which the tender is based. It is certainly most unreasonable to spring a considerable extra expense upon a client, incurred by his architect without his knowledge. In order to avoid any difficulty whatever, make the payment of extra work contingent, by the terms of the contract, on the architect's written order, and insist upon this procedure. At the same time, advise your client that he has no power to give any orders except through your agency. It will avoid disputes if you afford both parties to the contract the opportunity to fully study its contents. I have been surprised to find it necessary to ask builders to read through an agreement before signing it. For the architect himself, it is most important that he should be under no obligation whatever to either parties of a contract. He must not only be impartial, but give no occasion to the suspicion of partiality; keep strictly to the terms of the contract, and avoid the law like poison. I will not notice the questions of dilapidation and valuation further than to point out the caution required in dealing with them. If the public is induced to invest its money in any enterprise on the strength of your valuation, and this should turn out to be altogether too visionary, you will have incurred a heavy responsibility. If you are doubtful on the subject, it is better to pay for good advice. There is danger in trying to be a universal specialist. Find good brains, use them, and trust them. Before concluding, there is one more question to consider: That of giving certificates. Always keep good security, and keep well in view the contingency of the builder's failing before completing the contract. If you do not, you will have involved your client in embarrassment. Be very cautious in giving the final certificate. It is the client's acknowledgement, through your agency, that the builder has completed his part of the contract, and it debars him from any further claim. Pitfalls will come as long as it is human to err; but if an architect refrains from compromising his independence, pays attention to details, and never trusts to a verbal or ambiguous agreement, and will not allow himself to be persuaded against his judgment, he will avoid very many of them. It is easy to be wise after an event: to be wise before it is to learn from the experience of others.

A short discussion followed the reading of the paper, in which Messrs. H. O. Cresswell, E. Woodthorpe, Arnold B. Mitchell, F. T. W. Goldsmith, Leonard Stokes (ex-president), A. J. Bolton, C. H. Brodie, and the President took part, and a hearty vote of thanks was accorded to Mr. Bidlake.

THE SOCIETY OF ARCHITECTS.

THE first ordinary meeting of the Society of Architects for the session will be held at St. James's Hall, Piccadilly, on Wednesday afternoon next at 3 o'clock, when the President, Mr. W. H. Seth-Smith, F.S.I., will deliver the opening address of the session. This will be followed by a discussion, members only being allowed to be present, upon matters of interest to provincial members, amongst these being: The organisation of the provinces in support of the Architects' Registration Bill; the formation of a lending library, open to provincial members; the holding of sessional meetings in provincial centres; and the advisability of increasing entrance fee in future. The list of members shows a total of 428 on the roll, there being now 11 honorary members against 4 at the close of last session, 408 members against 396 last session, and 9 associates against 10. The report of the council states that during the session a policy of improving the organisation and extending the influence and giving stability to the Society has been steadily persevered in. Local secretaries, who had previously been appointed in only two provincial centres, have been nominated for all the principal cities and districts of the country, and for several of the colonies. The council have advised the Society to seek incorporation, and with this view they caused a memorandum and articles of association to be drafted, the former setting forth more completely than has hitherto been attempted the objects for which the Society has been founded and reserving powers for their accomplishment, while the latter comprise the present rules, with many alterations and additions, such as experience and the growth of the Society show to be necessary. These were submitted to the members at the annual general meeting in June, and, with certain amendments, adopted, it being left to the council for 1891-2 to carry out the reforms thus inaugurated. During the session papers were read by the President (Mr. R. Walker, of Cork), and by Messrs. G. A. T. Middleton (secretary), A. W. Rimington, T. C. Fidler, W. H. Seth-Smith, G. Howe, W. Woodward, C. E. Gritton, W. Aumonier, and Henry Adams. Mr. C. H. Searle, one of the oldest members, having resigned the office of treasurer, Mr. E. Tidman, F.S.I., was appointed in his stead. Arrangements have been made for obtaining a new lease of the premises now occupied at St. James's Hall. The financial statement shows a balance in hand of £49 10s. 7d., being £10 more than that announced last year. The council again express their regret that the Architects' Registration Bill should not have reached its second reading yet, but congratulate the independent committee which has the matter in hand upon its having reached a stage when success is more reasonably to be hoped for than heretofore.

THE FIRE AT SANDRINGHAM.

THIS fire, which, but for the rapid and workmanlike way in which the private fire brigade of His Royal Highness the Prince of Wales, under General Sir Dighton Probyn, V.C., and Mr. Mann, the captain of the brigade, might have ended in the total destruction of the house, shows clearly how desirable it is that the principles of fireproof, or rather fire-resisting, construction should be adopted in all country houses. It would seem that a portion of the floors of Sandringham were constructed of iron and concrete, while the partitions were of the usual

description of wood studwork; the roof and upper floor, which were of timber, were entirely burnt out, and the fire practically limited on the second floor to the destruction of the central block of rooms, the further progress of the fire being in part stopped by the concrete floors, and in the roof by iron trap-doors inserted in the various division walls carried up to the roof-line, some of which were much buckled by the heat, but, nevertheless, materially helped to stay the further progress of the fire. Had the partitions been of brick, or other fire-resisting material, it is probable that considerably less damage would have been done. The supply of water was fortunately almost unlimited, and the hydrants, both back and front, were brought into active play within a very short time of the alarm being given. Considerable damage has necessarily been done by water, but thanks to the partial fire-resisting construction of the house, the provision of sufficient hydrants with high-pressure service from the large water tower in the grounds, the tank of which held over 30,000 gallons of water, kept filled by constant pumping, the total destruction of the building was prevented.

Now that architects have learned by the recent long and costly strike of the carpenters and joiners that there are other means of constructing floors and roofs (at little or no extra cost) than with timber, it is to be hoped that fire-resisting construction will be much more extensively used in all country as well as town houses. Light iron or steel joists bedded in concrete, with wood blocks bedded therein for fixing the necessary flooring, would save many a lonely country house from destruction, for it is not in every place that the water supply or service can be as good as it was at Sandringham. At small additional cost the roofs may also be constructed of iron or steel rafters bedded in concrete, as is now being done in the new club house in Piccadilly for the Junior Constitutional Club, under Mr. Edis, the architect, and fire risk thus practically reduced to a minimum, if all partition walls are carried up in brick or concrete to the underside of roof slope.

His Royal Highness the Prince of Wales has intrusted the work of restoration to Mr. Robert W. Edis, F.S.A., architect, of London, who designed the new ball-room, and under whose directions a temporary roof is being put over the burnt-out block to protect the building until the permanent reconstruction can be carried out.

NOTES FROM EDINBURGH.

THE Dean of Guild, on occasion of his re-election, lately gave some statistics as to the building operations carried on during the course of the civic year about to close, or, rather, already closed. There has been no falling off, nor yet any perceptible increase, as compared with the statistics of the year preceding—442 warrants for 1891 compared with 441 for 1890, and 548 for 1889. Of these operations, the greater portion always comprises numerous alterations merely. The increasing number of dwelling-houses continues to be at the same ratio, and these, since the passing of the Police Act of last year, are much more carefully supervised than before; the conditions for granting warrant of erection being more stringent in many ways, but all with a view to the better sanitation of all future extension of the city. The tendency to build too high has been checked by the provision that every new street must be 40ft. wide (20ft. being the minimum hitherto), and no house higher than one and a quarter of the width. A certain amount of back green space is also required, a very necessary provision where the tendency is to make the most in every way of the area at command. The Court has also now the power to forbid any insanitary sub-division of tenements, where it is proposed to increase the number of tenants. Relief is also given by the Act, in the case of any warrant for minor alterations, whereby the Dean of Guild may, if satisfied, give his sanction without the usual formalities and consequent expense.

In respect of the extension of the city, a new scheme has just been started, with the object of making the Barnton Estate, lying about three miles from Edinburgh, a residential suburb. The Waverley suburban line, on the south side, has had so great success in developing that suburban district, it is not wonderful that the Caledonian should be found proposing to make a line expressly with the view of accommodating the public, even when seeking a suburban residence so far afield. This new line commences with a junction to the Leith suburban line about Craigleith, and will be 2¾ miles in length, with its terminus at Crammond Bridge, and another station at the east end of the Barnton Estate, the cost estimated to be £35,000. The rate for the perpetual building lease will be low—about £10 per acre. The mansion house of Barnton, with considerable acreage around it, will be preserved to preside over the rising suburb. About 4,000 villas of all sizes are indicated on plans, so that, if any success attends the scheme, some considerable check may be given to the extension of the city westwards. Arrangements are made for all the usual and necessary equipment of an independent town, gasworks, &c.

The McEwan Hall is now at an interesting stage of its progress to completion, the mason work of the main fabric being all but finished, and the contractor busy with the erection of the iron roof, which has been in progress for many weeks, and seems to make slow advances. This, however, is not so, the ribs of the dome being of such size, and weighing each about five tons, the task of merely shifting lofty scaffolding taking itself a great amount of time and labour in such contracted space. Already the great eye of the dome, 24ft. in diameter, and about half of the ribs have been placed. The dome is a flat one, with a rise of about 30ft. in one-third of the diameter, and promises to be a conspicuous feature in the distance. It will be slightly truncated at junction with the buildings already completed.

The plan of the auditorium is a semicircle of 100ft. diameter, carried on with straight lines to junction with the main edifice for a short space, and with a recess in line of the college building, 67ft. wide and 25ft. deep, for the platform of the hall. The height from floor to the cornice, immediately below the dome, is 60ft., and from that to the cupola 20ft., or about 90ft. in all. It is not easy, however, to form any very good idea of the interior proportions without the floor. An excellent model of the hall, with minutely accurate detail, explains everything to the eye—both outside and inside—the latter as seen from the platform, and an ingenious arrangement of gas-light indicates the effect of the cupola in lighting up the interior.

The interior, however, is much larger than the dimensions given above would indicate, as two tiers of galleries are provided for outside it, over the corridor passage, which surmounts the circular wall of the auditorium, and which will be about 15ft. in width. This allows of five stages, some of which are being erected in the upper tier. These are carried on steel girders, resting on corbels, wrought on the lofty columns of the hall. The frieze of the entablature is finished with the sculpture, and shows Rennaisance floral design, with which the City or College arms are intertwined. Over the capitals of the pillars at sides the M'Ewan arms have a place of honour.

The interior will be thoroughly lighted to its farthest recesses—no doubt by the roof light. There will also be the range of circular clerestory lights immediately under the dome, and large lunette or segmental lights where the west wall rises above the older building.

The grand staircase entrance on the south is now well on towards completion. It is about 30ft. in width, circular for the stairs, with landings on the south side, carried on pillars of red sandstone and arches. All the interior is of polished stone-work; the steps of hard Arbroath stone. The balustrade and all details are of the most tasteful and ornate description, and the plain outline of the balusters is relieved and enriched by sculptured foliage meandering over the surface. The ascent is very easy, the steps being low, and the same commodious design marks the circular gallery staircases, which are about 6ft. wide, built round a circular pier of brickwork about 4ft. in diameter.

The ceilings of the great staircase will be groined, the groinings resting on finely-carved corbels. All ceilings are groined, either with concrete alone, or stone groins and quadripartite vaulting in brick. The walls of corridor surrounding the auditorium and ceilings are of a fine faced brick of a pure bright-red colour, the stone groin being in plain angular chiselled work.

The whole of the basement wall surface is lined with white glazed brick. The completion of the tower is still unprovided for.

Another large undertaking is making g progress — viz., the Caledonian-road Stat which will by-and-by be a crystal palace tow ing above the western portion of the city. mason work of the Princes-street frontage only partially begun in the portion of s available without detriment to the passer traffic; but is well advanced, and a little al the foundations along the Lothian-road. whole of this, the architectural part of the des is a mere verandah for the shed behind; is being built in a manner most substanti strong enough to carry any superstructure the shape of an hotel.

The walls of the great shed are completed nearly so. They are very lofty, as seen f the lane on the north, and buttressed with stantial piers, and have a base course, corr and a blocking course. The whole of the m work is carried out in red Dumfriesshire ston

The ironwork of roof is being erected Messrs. Fowler, of Motherwell, in steel. width between walls is 180ft., and the desig the roofing simple, light, and lofty. If pr means of ventilation are provided there shoul less of the dirty discoloration that marks Waverley shed, and there is certainly a n more sightly and less perplexing arrangemer materials. The main girders, about 60ft. a probably, are 20ft. deep, of the most sin zigzag pattern. They are stiffened longit nally by three lattice girders, with segme intrados, and at the outside, under the trusses, by a light screen girder. The trusses, running north and south, are of usual character. The most striking featu the whole is the seemingly small amount of i work employed to bridge so large a span.

The Royal Scottish Academy opens this y instead of waiting till February. This is a arrangement, as the winter months will pre better opportunities than the spring, with greater attractions in the way of out recreations.

CHIPS.

The memorial stones of a new Wesleyan Me dist church were laid on Wednesday week a village of Thorpe, near Whitby. The new ch is to be built of stone, and the site is in the ce of the village, which is growing in importance sea-side watering-place. Messrs. Waddington Manchester, are the architects.

Mr. J. Herbert Lewis, chairman of the Flint county council, has built and presented t neighbourhood of Ffynnongroew (a scattered l let adjoining Mostyn) a school for infants. building, which has been erected by Mr. Mat Rogers, Flint, from the design of Mr. Ri Owens, architect, Liverpool, will accommod scholars.

The French Chamber has adopted the Bil the construction of a museum of decorative a the site of the former Cour des Comptes, d'Orsay.

The Anglesea county council have decided to i plans by competition for a police station at H head, premiums of £50 and £10 being offere the two best plans.

At a meeting of the members of the joint mittees for the supply of water to Colwyn Conway, and the district, held on Friday at way, the tender of Mr. T. Bugbird, Carn (£21,500), was accepted out of a large numbe in. Mr. Farrington, C.E., borough survey Conway, is the engineer in charge of the sc the supply of water being drawn from a lake mountains near Llanrwst.

The Hunt memorial museum at Redruth opened on Monday week. It cost £700, exc of furniture, and is 30ft. by 40ft., and 20 height. The contractors were Mr. Gray, of ruth, and Mr. Moyle, of Chasewater.

Sanitary engineering must, "Atlas" rema the *World*, certainly rank high among the professions of the future. Mr. Cousins, who go out during the winter to report on the M drainage question, will receive something £3,500 for his six months' work.

The opening address of the present session Society of Arts will be delivered on Wedn week, the 18th inst., by the Attorney-Ge M.P. The Wednesday lectures for the s include one on "Typological Museums," by G Pitt-Rivers, and another on "Artistic Treatm Jewelry and Personal Ornament," by Mr. Toules, of Birmingham. A course of three lectures on "The Pigments and Vehicles Old Masters" will be delivered by Mr. Laurie on Nov. 30 and Dec. 7 and 14.

WAYSIDE NOTES.

CONTRARY to the admonitions of Mr. Ruskin, the majority of our greater lights seem prone to reside more or less centrally in the heart of London, when, one would imagine, having sufficient leisure and superfluous funds, they would prefer residence in some more rural district, and thus escape the danger of that "walling-up of the imagination" which the author of the "Seven Lamps" avers to result from the habitual contemplation of bricks and mortar. The architect might naturally be supposed to be a lover of rural scenes, and to relish for an environment of beautiful country and continual converse with Nature in her every mood, desiring nothing more fervently than his own country seat, howsoever modest, wherein he might daily meditate "all in a garden fair." But supposing the dwellers in town to possess anything more extensive than such back-yards as municipal by-laws enforce for the sake of light and air, they have at best to make do with a London garden—that pitiable substitute for its country relative—which, with its smoke-blackened tree-trunks, blighted foliage, and sickly grass, always appears to me the very essence of mournfulness.

These things being so, then, it is pleasant to take up the posthumous work of Mr. J. D. Sedding. "Garden Craft" should atone in some measure for the general neglect by architects of the study of those common objects of countryside which, for all their commonplaceness, contain lessons for all time such as we need to take to heart in days of machine work, and feeble dependence upon ancient examples. Mr. Sedding resided sufficiently far away from the Metropolis to personally put into practice those principles of "garden craft" he has advocated in his work, and he looked to it that, for his part, there should be no "walling-up" of the imagination by residence among bricks and mortar. It would be well if there were many more after the mind of the late architect. Too large a proportion of London architects cling to town life like the cat to the hearthrug. Seeing how largely the elementary principles of design—more especially decorative design—are derivable solely from constant study and observation of nature, this continual citizen life must influence the class of work of London architects. By "nature" I would not mean such a narrow interpretation of the term as is represented by London gardens and fashionable conservatories, but the whole face of heaven and earth, the sea and all that in them is. In the curling wave, as in the shell by the seashore; in the rolling down, and in the grass that grows on the hillside; and in the leafy oak-tree, as in the delicate ivy shoots that cling to its rugged bole, there is inspiration for all who have eyes to see, hearts to feel, and knowledge to understand.

Sandringham House was neither noteworthy architecturally nor historically; but all will regret the personal loss and inconvenience to the Prince of Wales, who was about to make more than ordinary use of his Norfolk home. According to general supposition, the fire originated from a defective flue—showing how the prince and the peer are both in common danger of the great curse of fires in country houses, and demonstrating, furthermore, how much careless workmen or others have to answer for. There is an up-to-time air about the announcement that on the discovery of the fire on Sunday, "the various district church-bells clashed the alarm."

As ordinarily happens when a large country mansion gets well alight, great damage has resulted from the fire. Unlike a fire in town, where, within a few minutes of the announcement that Mrs. Jones's curtains are blazing in the "first-floor back," steam fire-engines galore come dashing up from all sides, endangering, in their hurry, the lives of citizens innumerable on the off-chance of having to save someone or something, we have a very different scene at the country fire, especially the fire at a large mansion. Means of fire-extinction sufficient to cope with the burning cottage of ordinary house, and a band of firemen, whose most experience may have been attendance on a fire at Mr. Wurzle's stack-yard—on which occasion they made a thorough job of the thing by pumping so much water on stacks as to actually spoil all that the fire had spared—are useless against the mass of fire in an extensive mansion. And as to that prevention which is better than cure, the hand fire-extinguishers will prove rather aggravating than otherwise to anything like a determined outbreak, and the family being out of town, such boy domestics as are on the premises may have borrowed the nozzles of the standpipes—"if any," as Wightwick has it—for the purposes of practising melodies of the hunting-horn. All things considered, therefore, we need scarcely wonder at the wholesale destruction that follows a fire at a country mansion. Means, provided at great expense by the proprietor, for fire-extinguishing are ineffectually worked, out of order, or otherwise rendered useless on emergencies; and though all the country around may be astir, there is no checking the progress of the flames without means proportionate to the end to be attained. In most cases, it will only be a manual engine that will arrive, and what one or two "manuals" are when opposed to a large fire we do not require very extensive experience to determine.

I trust that the contractor for the proposed Blackwall Tunnel will make a better thing of the contract than have the contractors for the execution of works in connection with the tunnel under the Mersey at Fidler's Ferry, who, it has been stated at a meeting of the Liverpool Town Council, have dropped some £16,000 or £17,000 on their contract. It is now proposed to release the contractors from their engagement, and to make a new arrangement with others to continue the works. That contractors should be so unfortunate as to lose money on a contract to such an extent as in this instance, is less surprising when we consider the nature of the work. Tunnelling for ordinary railroad purposes through hill and mountain is hazardous enough, and the work becomes infinitely more so when the tunnel is formed under water with all the risks of unforeseen inundations and other unlooked-for mishaps. Much, however, seems to have been done in perfecting the pneumatic-shield system of working, so that risks from inundations are now vastly reduced; but the work remains yet subject to special risks. Contractors will only take it up under terms allowing a much larger margin for contingencies than in other classes of work, as witness of the truth of which we may take the tendering for the Blackwall Tunnel. The highest price allowed, apparently, an enormous margin, whilst even the lowest, which the County Council on Tuesday last, by a majority of 41 to 10 votes, have decided to accept, is far in excess of the Parliamentary estimate.

A.A. Notes for November to hand. The number will be found interesting in parts, and contains, as supplement, the Presidential address printed *in extenso*. Bright "Notes," an account of a visit to Amsterdam, a description of an experience in pupilage in a provincial office—in which I am glad to see a word said against those who supply builders with slovenly plans—are in the number, while the stock dish of Street's lectures comes up again, the present instance being a protest against unreasonable symmetry, which protest, I am glad to think, we do not much require at this day, having made some progress since the days of the Classic revival and its stiff formalities of plan. The word as to the supplying of roughly-made plans to builders is timely. On occasions it may be that pressure of work causes the drawings or tracings to be sent off hurriedly and with draughtsmanship not of the first order; but those architects who habitually supply their builders with indifferently-prepared drawings on the plea that "anything will do" for such purposes, must have little of the true spirit of the architect in their nature. I should, indeed, go so far as to say that if builders in receipt of ill-made plans did their work in an indifferent manner, that in some small measure the architect would be to blame for the example set. It is but a natural effect that a man having put before him a piece of badly-done work, should imagine that the most perfect workmanship on his part was also unnecessary. No architect having pride and interest in his work—and all true architects must take pride and pleasure in all they do—would be guilty of putting before the builder an inferior set of drawings just because it is the builder who is concerned, and not the client. It is true that the drawings are merely a medium, as the MS. is a medium in printing; but the medium affects the actual produced work, especially in the matter of the details of its accomplishment. And putting aside all practical disadvantages of ill-made drawings, it shows kindly consideration for our builders if a little courtesy is evidenced in the preparation of the plans they have for their guidance on the works.

When a Welshman is emphatic it is with a vengeance. The Churchmen of the diocese of St. David's have been taking holy counsel together in diocesan conference, and among the other spiritual offenders we architects have duly come in for our share of thunder. Mr. Davies, of Compton, Aberayon, says, "the greatest curse of church restoration is the local architect." A hard saying—is it not?—for us who know the thorns in the flesh in the shape of the æsthetic parson with a taste for fancy ritual, and the she-dragon who usually dominates him? We are not, however, denounced alone. The next sinner is the Incorporated Church Building Society, which will not stump up in accordance with the large-hearted restorers of St. David's. What the Welshmen apparently want is a society that will find all the cash and an architect that will do the work for nothing. GOTH.

CHIPS.

A memorial cross, erected by public subscription, over the grave of the late Dr. W. H. Monk, the musical editor of "Hymns Ancient and Modern," was uncovered in Highgate Cemetery, on Monday, by Bishop Jenner. The monument, which is of massive Aberdeen granite, was designed by Mr. James Brooks. At its summit is a cross, and at the base a suitable inscription.

Mr. W. Booth-Scott, M.Inst.C.E., for over 35 years chief surveyor and engineer to the vestry of St. Pancras, died suddenly on Saturday morning, at his residence at Church-row, Hampstead. He was in his 70th year. The appointment is worth £650 per annum.

Lady Frederick Cavendish opened, in the Leeds Fine Art Gallery, on Monday, an Exhibition of Arts and Crafts, held under the auspices of the Yorkshire Ladies' Council of Education.

The Common Council of the City of London have resolved to unite with the County Council in promoting a Bill in Parliament next session dealing with the water supply of the Metropolis.

On Saturday the memorial stone of the first block of cottage homes being erected at Colinton by the Aged Christian Friend Society of Scotland was laid. The block, consisting of eight houses, is being built in Redford-road, near the village, and each house contains a room, a light closet, and a scullery. Mr. Wilson, of Edinburgh, is the architect, and estimates have been accepted involving an expenditure of £1,380.

A stained-glass window has been put into the south aisle of Jedburgh Parish Church, to the memory of the late Mr. James Stevenson, for many years Procurator-Fiscal for Roxburghshire. The window was the workmanship of Mr. Ballantine, Edinburgh.

An adjudication in bankruptcy is gazetted in the case of Thomas Porter, of Lowestoft and Carlton Colville, architect.

A bust of Matthew Arnold, executed by Mr. A. Bruce Joy, was unveiled on Saturday, in Westminster Abbey. The memorial, which is of Carrara marble, is placed in the baptistery, near the west entrance, between the busts of Kingsley and F. D. Maurice. The medallion to Mr. Henry Fawcett is below the window, and nearly opposite is the statue of Wordsworth. On the west wall is the memorial of Keble.

The interior of the church of St. Agnes, Southport, has been decorated in colour. In the spandrels over the nave arcades are represented the four major prophets and the four evangelists, designed by Mr. Shields, and executed by Mr. Britten, both of London.

A new post-office at Northwich was opened on Monday. Messrs. Stelfox and Carter, of Northwich, were the builders, the sub-contractor for the stonework being Mr. G. Rathbone, who also acted as clerk of works. Mr. W. H. Chadwick has done the painting, plumbing, and gas-fitting.

Mr. Geo. Anderson, builder, Rochester-terrace, Edinburgh, who was severely injured on the 28th ult. by the fall of a stone while he was superintending some work at the Convalescent Home, Corstorphine, died yesterday morning in the Royal Infirmary at Edinburgh, to which he was conveyed after the accident.

New schools are in course of erection for the Guildford school board at Charlotteville. Mr. G.W. Lowe is the architect, and Messrs. Morgan, Isted, and Morgan, of Southampton, are the builders.

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ILLUSTRATIONS.

THE WARRIOR MEMORIAL AT THORN.—THE PLOUGH ROAD SCHOOLS, LAMBETH.—HOUSE FOR PROF. WILLIAMSON, F.R.S.—GRAND PRIX DE ROME: "APOLLO PLAYING TO THE SHEPHERDS."—TURKISH BATH, DRAWING ROOM, AND LIBRARY AT THE HOTEL METROPOLE, BRIGHTON.—THE TATE CENTRAL LIBRARY, BRIXTON.—CHAIRS OLD AND NEW.

Our Illustrations.

THE WARRIOR MEMORIAL AT THORN.

This rich work in glazed brickwork, executed in reds, greens, and browns, has been erected from the designs of Professor Otzen, the celebrated German architect, whose works are conspicuous among the more important buildings of Berlin and the neighbourhood. His Church of the Holy Cross in that city cost over £30,000; and the Lutheran Church there, which he built, cost £24,000. The leading characteristic of all the professor's work is that faïence and glazed wares are largely introduced. The moulded brick buildings of the North of Germany, dating from the Middle Ages, afford fine models for study, and furnish one of the great types of Mediæval Gothic architecture in a specially local style, to be found in Europe, just as other types are seen in North Italy and in Spain. The Mediæval brickwork of Pomerania, too, has been more than once illustrated in our pages by Mr. J. Tavenor Perry. Prof. Otzen has, on thoroughly modern lines, developed for new uses this style of constructive ornamentation, and so numerous are the examples of his buildings in this style that Herr Wasmuth, of Markgrafenstrasse, Berlin, has lately issued a monograph fully illustrating most of the more important of them as a textbook for those who study new work as well as old in acquiring a knowledge of architecture. The Warrior Memorial at Thorn, shown to-day from the architect's own perspective view, which he has lent us, is, as we have said, entirely in brick. Stone has always been a luxury in North Germany, and the architecture of the districts in the quarter of Saxon Switzerland and the Hartz Mountains, naturally developed out of the material readiest to hand. Stone, indeed, had to be shipped from Sweden, and thus brick was, and is, the material most available. This present florid work is further elaborated with Venetian mosaic for the Coats of Arms and inscriptions.

PLOUGH ROAD BOARD SCHOOL, CLAPHAM JUNCTION.

This school has been recently erected for the School Board for London, from the designs of their architect, Mr. Thos. J. Bailey. The building accommodates 1,200 children, in three departments, for boys, girls, and infants, with six classrooms, and a central hall, about 70ft. by 30ft., for each department, and contains the usual accessories of ample cloak-room accommodation, teachers' rooms for each department, lavatories, &c. There are good open and covered playgrounds, with caretaker's house and centre for instruction in cookery. The staircases are faced with glazed bricks, as also the dadoes of classrooms and halls, which are plastered above. The exterior is built in the ordinary grey stocks, with red edgings and stone gables, the roofs being of Broseley tiles. The cost of the school, with works to playground, and all accessories, has been £16,250 11s. 4d., the builder being Mr. Chas. Cox, of Hackney. The drawing from which our illustration is reproduced was exhibited in this year's exhibition of the Royal Academy.

HOUSE FOR PROFESSOR WILLIAMSON, F.R.S.

This house was built near Hind Head, of red brick, the walls of the upper floors being covered with hanging tiles, as the situation is an exposed one. The roof is covered with Broseley tiles. The contractors for the work were Messrs. Grover and Sons, of London. Mr. Frederick W. Waller, of Gloucester, was the architect.

"APOLLO PLAYING TO THE SHEPHERDS": PREMIER GRAND PRIX DE ROME, 1891.

This work of sculpture, by M. François Sicard, of Paris, won the Grand Prix de Rome this year in a strongly-contested competition. His design is marked by a freedom of treatment and grace of line, which well befits the panel for architectural purposes, without too rigidly subordinating the figures to their immediate surroundings, so long considered an essential limitation to a legitimate use of sculpture in buildings.

THE TURKISH BATH, DRAWING-ROOM, AND LIBRARY, HOTEL METROPOLE, BRIGHTON.

Mr. Alfred Waterhouse, R.A., has popularised more than one style of work in finishing and furnishing the interior of his monster hotel at Brighton, as the four photographic views which we publish to-day amply demonstrate. The Turkish Bath, rich in faïence and brickwork, is thoroughly suggestive of its intended purpose, and without slavishly following the more conspicuous forms of Moorish design, the architect has secured an air of spaciousness, brilliancy of colour, and Oriental splendour which baths of so luxurious a kind seem to suggest. The Drawing-room has large paintings of notable Sussex mansions, fitted in panels round the apartment, as shown in the view, between a dado in white and a deep plaster frieze. The Library Chimney-piece in walnut, like the bookcases, needs but little description, as the photograph shows the work clearly enough as being well adapted for its club-like character. We printed a general view of the Hotel Métropole at Brighton in the Building News for May 10, 1889, from Mr. Waterhouse's Royal Academy drawing that year.

TATE CENTRAL LIBRARY, BRIXTON.

For description and further sketch, see p. 666.

TYPES OF CHAIRS, OLD AND MODERN.

The ancient chair which figures first on this sheet is supposed to be Etruscan. Executed in marble, it is carved in low reliefs representing a procession of warriors, a boar hunt, &c. It is now in the Corsini Palace at Rome. Unsuitable from its weight for anything but a state chair, still it is an object of great beauty; and, from the fact that it must be one of the oldest chairs extant, obtains a prominent place on our page. The well-framed chair next to it, with a pronounced Roman character, is a good type. Somewhat uncommon features are the perfectly straight arms and the arch and baluster work under the seat. It has an official appearance, and would look well at the head of a table in a committee or board room. The "Georgian" is the antithesis to the formality of the last. The curved arms, bent supports, and widely-spread legs give it a jaunty air, which suggests familiar conversation and the comforts of a glowing hearth. It was to be seen at the recent Naval Exhibition. The design emanating from the "School of Handicraft" is as simple as it is effective. The seat is covered with tan brown leather, and a broad piece of the same material, embossed and well padded, makes a suitable finish to the formal back. The two first chairs below from good furniture for a hall. The "Shakespearean" is a form familiar to us as being the product of the period to which our great national poet belonged. The high-back seat, next in order, belonged to Thomas Wentworth, first Earl of Strafford, and has his arms carven thereon. It forms one of a set now preserved at South Kensington Museum. These two are perhaps not what would be called comfortable chairs according to present tastes but then they were adapted for use in times n given to the luxury of the present age—in a age, too, when life was passed more in the ope air, and had little desire for that ease which no leads to many padded monstrosities. The latter bulge out into ever-varying forms, fashion and a craze for novelty dictate. The is little doubt that if the old furniture designe were required to work for the present day, th would, without sacrificing the greater ease no demanded, give us something beautiful at t same time. The "King Charles," though modern make, is a noticeable exception to o last remark, for it is as comfortable as it dignified, being firmly made, well stuffed, a covered, moreover, with sumptuous Genoa velv with a stamped pattern. Space will not perm us to do more than call attention to t interesting chair from the studio of Mr. J. Reid, the talented painter; and the quaint a feelingly designed "Queen Anne," whi possesses a charm all its own.

COMPETITIONS.

Aberdare Conservative Club.—The desi prepared by Mr. James Crombie, A.R.I.B. Brixton, for a new Conservative Club at Ab dare, South Wales, has been placed first, and has been instructed to carry out the work.

Bath.—The Municipal Buildings Competit has not attracted so many designs as might h been expected, but out of the nineteen sets designs which have been received, no doubt fr what we have seen some will prove worthy of occasion. Part of the present well-known fac will be incorporated in the intended group, which the existing pediment is to form central feature. Mr. William Young, F.R.I.B. of Lancaster-place, is the professional refe The drawings were received at Bath Saturday.

Birmingham Hospital.—The conditions competition and particulars of accommodat together with block plan of the new site, for General Hospital were forwarded on Fri evening to the competing architects. F months is allowed to send in designs.

Coventry.—It will be remembered tha month since the city council of Cover accepted plans for new baths to be erected in Pool Meadow submitted under motto in comp tion, which proved, when the envelopes w opened, to be the work of a "minor," Harold T. Burgess, a pupil with Messrs. Spal and Cross. The council have now decide appoint the principals of that firm as jo architects with Mr. Burgess for the work.

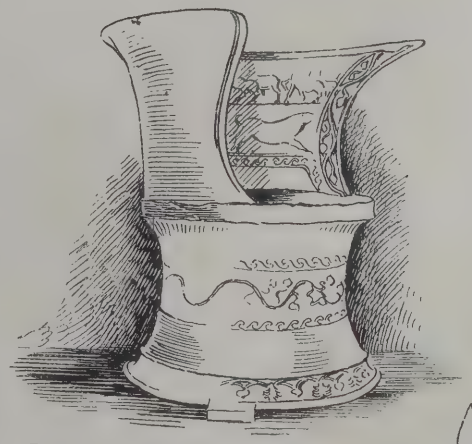
Oxford. — Last Saturday the competi drawings for the Oxford Municipal Build were received. Owing to the illness of Mr. E Bruton, F.R.I.B.A., of Oxford, who was pointed as professional referee, it has b decided that the duties of assessor shall be ca out by Mr. T. E. Collcutt, F.R.I.B.A. London.

Port Talbot Intermediate School Co tition.—We are informed that, owing to dissatisfaction expressed in this competitio the non-appointment of a professional assesso the committee as promised, the whole of plans were returned, and the committee, wit assistance of Mr. E. M. Bruce Vaug F.R.I.B.A., have reconsidered the plans, the result that those of Mr. T. P. Martin Messrs. Phillips and Holdgate were sele The committee have appointed Mr. Mart carry out the work, subject to the approv his plans by the County Council and the Ch Commissioners.

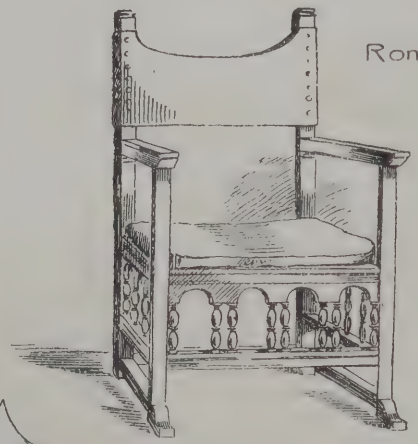
The Prince of Wales attended at St. Ba lomew's Hospital yesterday (Thursday) after for the purpose of receiving, as president o hospital, the portrait of Sir Sydney H. Wate the treasurer, which has been painted by Prof Herkomer, R.A.

The mayor of Newcastle-on-Tyne opene Friday, a new swimming-bath at Newcastle w house, in a building adjoining the main blo property. The bath is 50ft. by 21ft., wi average depth of 3ft. 6in., and was construct a cost of £600. The plans were prepared b W. H. Dunn, the architect, and Messrs. G Scott and Son were the contractors.

TYPES OF CHAIRS OLD AND MODERN



Etruscan



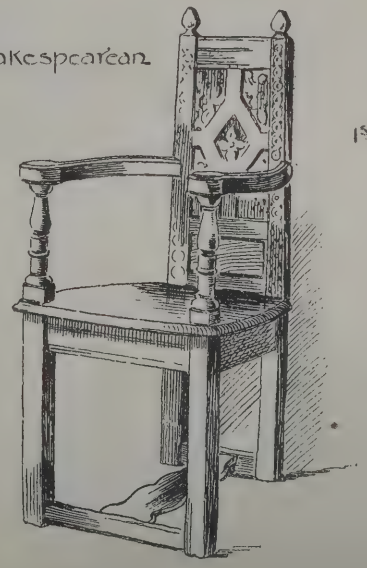
Roman



Georgian



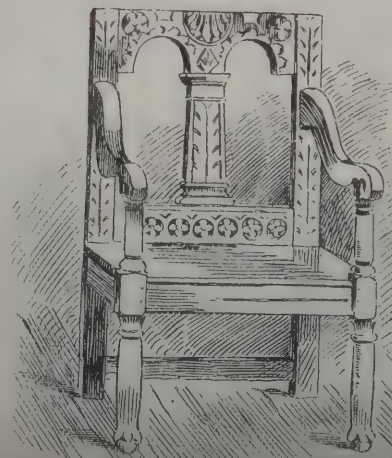
School of Handicraft



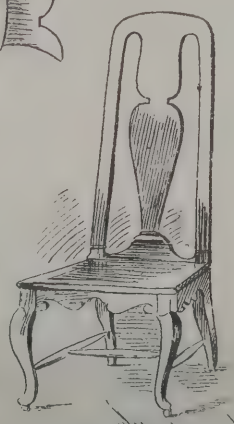
Shakespearean



Chair of the 1st Earl of Strafford



From the Studio of M^r J. R. Reid



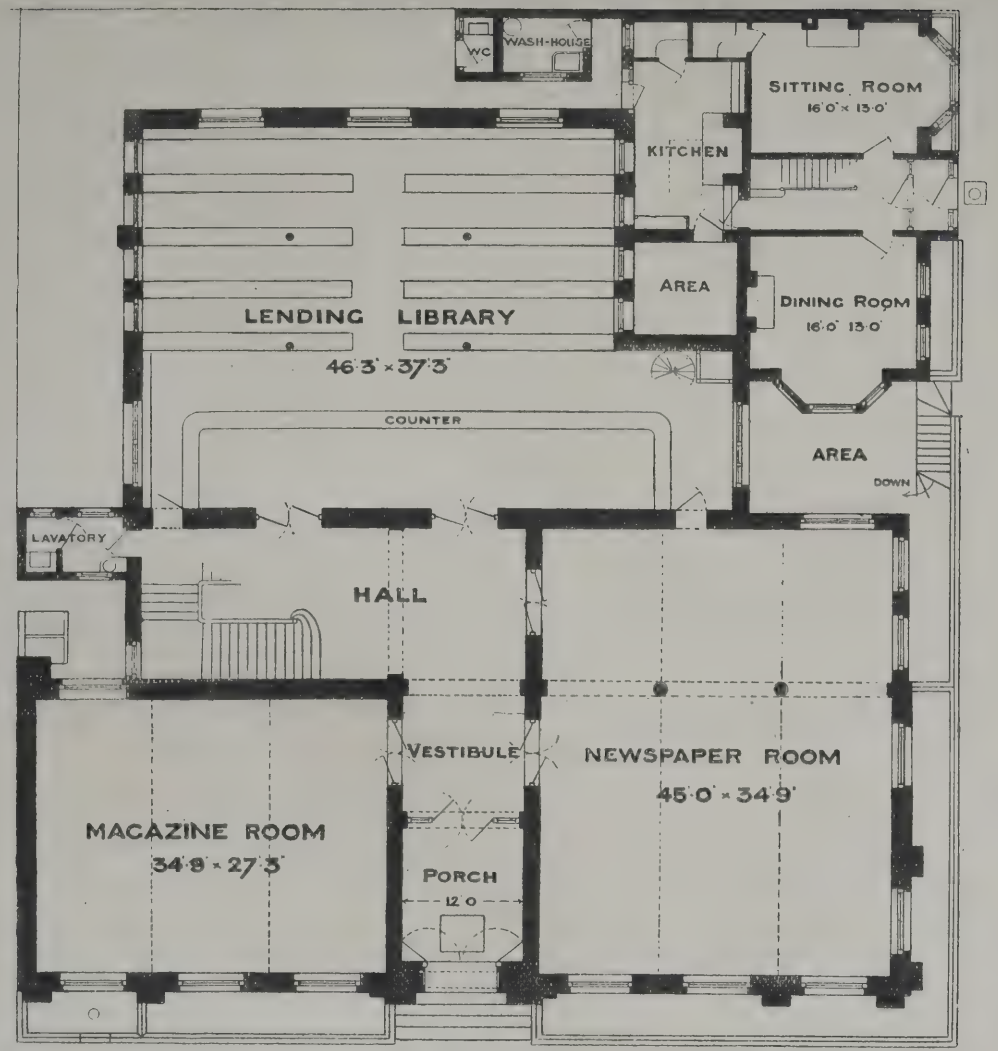
Queen Anne



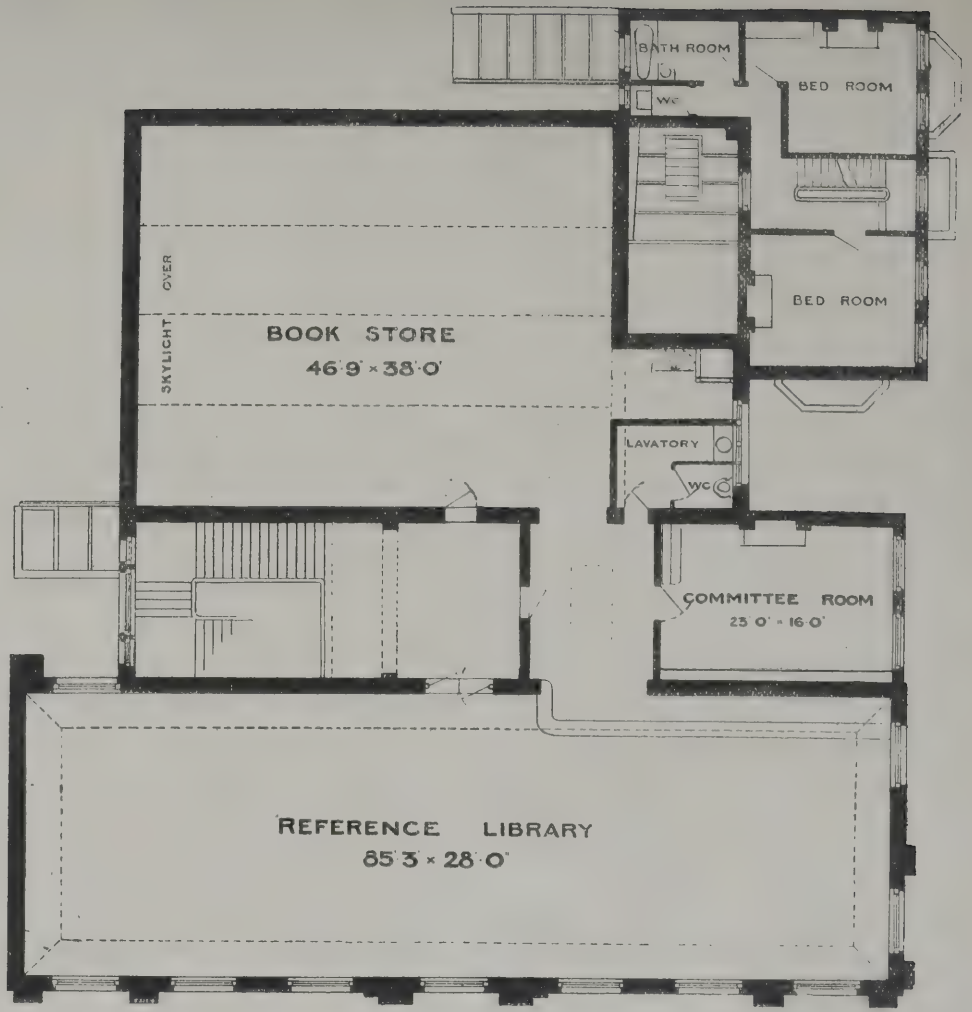
King Charles

E. Chancellor del.

BRIXTON LIBRARY



GROUND FLOOR PLAN



FIRST FLOOR PLAN

Sidney R. J. Smith del.
15 York Buildings
Adelphi W.C.

10 5 0 10 20 30 40 50
SCALE OF FEET

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE opening meeting of the session of the Institute was held on Monday evening. The meeting-room at the Institute's premises in Conduit-street had been renovated during the recess, and the electric lighting improved and rearranged. The President, Mr. J. MacVicar Anderson, occupied the chair. Several ladies were among the visitors present.

THE OPENING ADDRESS

was read by the President, who commenced with a review, retrospective and prospective, of the subject of examination. There were, he remarked, some within the Institute as well as outside of it who were opposed to the policy of examination, and who, considering it prejudicial to the welfare and highest interests of the profession, would deprecate its extension. On such he urged that the day had gone by for raising objection or inaugurating opposition. No one could allege that the policy was not maturely considered prior to its adoption in 1882, and its subsequent confirmation by the Royal Charter in 1887, and any who now found themselves honestly opposed to it ought to feel loyally bound to the decision of the majority; and if unable to take an active part in the scheme of examination, they should at least avoid any action which might tend to injure or to minimise the influence of the Institute in the honest endeavour to raise the standard of knowledge and efficiency, and so to promote the highest interests and the credit of the profession. The arguments on which this opposition was based were embodied in a memorial presented to the council, and in a letter which the memorialists published in *The Times* last March, under the title or "Architecture: an Art or a Profession?"—words which appeared to the President to suggest under an attractive form an entirely false issue, and one which was in its essence misleading. To declare that architecture was an art was to repeat a truism; it was not only an art but a fine art, to which in some respects the sister fine arts of painting and sculpture were handmaidens in a sense which could not be said of architecture in relation to either of them. But architecture was more than this. It was an art *and* a profession. To ask whether it was an art *or* a profession was not only to put the subject in an incomplete and a misleading form, but to endeavour to divorce two things which were indissoluble. The unique characteristic of the calling of an architect was that it combined such different qualifications—artistic taste, scientific knowledge, business proficiency. They had no claim to be architects in the true and full sense of the word unless they were artists, able so to dispose and to clothe the materials with which they had to deal as to produce beauty of form and proportion. But they must also be scientists, so familiar with the strength and properties of materials as to combine them in sound construction; and they must, moreover, be men of business, able to protect the pecuniary trusts which were committed to them. The body politic of architecture was composed of parts, each one of which was essential to the unity of the whole, and without any one of which it would be incomplete and useless to society. There were those whose proclivities and aspirations were specially artistic; there were those whose genius was constructive; there were those who *par excellence* were men of business. The ideal architect was the man in whom these qualities were united—who was an artist, a constructor, and a man of business. Any who claimed that he was one only, to the detriment of the others, detracted from the nobility as well as from the unique character of his calling. Further, the memorial said that the artistic qualifications of students, which really made the architect, could not be brought to the test of examination; and, consequently, that the attempt to test the knowledge of art by examination was delusive, and calculated to militate against the interests of architecture as a fine art. He held, however, that art had a history, which there was no difficulty in teaching; and as for the theory and practice of art, were not those systematically taught in architects' offices, in the classes and schools of the Royal Academy in this country, the Ecole des Beaux-Arts and other schools in France, in many kindred institutions on the Continent, and in the schools of art and of design throughout this country? If, then, the history, the theory, and the practice of art were thus imparted by teaching, with what truth could it be asserted that to test such acquired knowledge by examination was detrimental to its highest interests? Much that was valuable, if not essential, to the career of an artist could be, and was, taught, and to test knowledge thus attained could not possibly do any harm, while, on the other hand, it might be, and indeed was, productive of nothing but good to the student. The President proceeded to point out that under the Charter of 1887, while the Qualifying Examination for Associates was from the first made compulsory, the institution of a similar examination for Fellows was rendered permissive only, and might be inaugurated five years after the date of its grant, and that period would expire in March next. In order to assist in forming a correct judgment on the point of the desirability or otherwise of instituting an examination for Fellows, the President inquired what had been the result of the compulsory examination for Associates established in 1882. For the purpose of comparison, it would be only fair to exclude the two years immediately preceding that date, during which an exceptional influx of Associates occurred, from reasons into which they need not inquire too curiously. He would, therefore, take the eight years from 1872 to 1880, and compare them with the eight corresponding years in the succeeding decade—viz., 1882 to 1890. During the former period, the number of Associates who were elected was 246, or an average of 31 per annum, while in the latter period the number of Associates who were elected had been 328, or an average of 41 per annum. This latter average would have been still larger had the whole of the 533 candidates who applied to be examined been passed, or had the whole 366 who were passed been elected. It was, moreover, worthy of note that since 1887, when the compulsory examination for Associates was confirmed by Royal Charter, a remarkable increase in the number of applicants had occurred; for in the four succeeding sessions there were no fewer than 375 candidates, of whom 262 were elected, being an average of 65 per annum. It thus appeared that, while prior to the institution of the compulsory examination for Associates in 1882 the average of annual elections was only 31, since that date the annual average had been 41; and, further, that since the confirmation of the examination by Royal Charter the annual average had been 65. These were facts which could not be controverted, the significance of which was remarkable, affording, as they did, irrefragable evidence that the compulsory examination had not exercised a deterrent effect so far as Associates were concerned, but, on the contrary, had actually formed an incentive and an inducement to join the Institute. Who would say that those 376 Associates of the Institute were not better men, and would not be better architects, from the enforced study and the acquired knowledge that they owed to the compulsory examination? Seeing, then, that examination had resulted in the addition of so large a number of qualified Associates to the list of members, why should not a similar result attend the extension of the same policy to the class of Fellows? The question was not so much, Why should Fellows be subjected, before election, to such a qualifying test? as Why should they be excluded from advantages which the other class of members had derived from it? As the result of a careful review of the whole subject, he expressed the decided opinion that, in pursuance of the permissive powers of the Charter, the Institute should next year declare that on and after a certain date to be specified, "every person desiring to be admitted a Fellow shall be required to have passed such examination or examinations as may be directed by the Royal Institute." In the event, however, of that policy being adopted, it should be understood that the words of the Charter, "But in special cases the Council shall have power to dispense with such examination or examinations," should be liberally interpreted for a period of years, for the obvious reason that there were men now in the profession enjoying extensive practice, to whom, should they propose to join the Institute, it would be manifestly absurd to apply the test of examination. He thought, further, that while they owed a deep debt of gratitude to the board of examiners for their arduous labours gratuitously given during the past nine years, they ought not to expect a continuation of such free services, and the question of remuneration would have to be faced. The President proceeded: Before leaving the subject of examination, let me refer to what some seem to look as its necessary goal — Registration. T inevitable evils which must accompany adoption of any scheme of legal registration admitted, even by its most ardent advoca The preliminary question, therefore, which r on the threshold of any consideration of the s ject is whether these evils are likely to be o weighed by counterbalancing advantages? I no doubt, regrettable that anyone, whet qualified or not, should be at liberty engrave "Architect" on his doorplate; it would be vastly worse, and only ju fiable under the pressure of the grav necessity, to legally register as a qu fied architect every carpenter, auctioneer, undertaker who now has the effrontery to himself so. And, after all, is the existing so great as it is made out to be? It may thought a little humiliating to find tradesm assuming to be qualified practitioners in a lear profession, but the pretension is so absurd a secure its own defeat. There are a suffici number of educated and qualified architects the public have not such intelligence, and reg to their own interests, as to discriminate between them and the persons I have refer to, no Act of Parliament will endow them wit any more than it will prevent quacks from find means to impose on them. The Archite Registration Bills which in recent years h been promoted in the House of Commons h failed in providing machinery that would rem this evil. The mere enactment that no could, under penalties, use the word "architec unless legally registered would not meet difficulty. There are numerous and obvi loopholes for the evasion of such legislation. object to the proposed Registration Bill, because it is not called for; an essential p liminary to such legislation being that it demanded by the profession, instead of be promoted by a few individuals who can in sense be said to represent it; and (2) becaus would inevitably fail in effecting the object forth in the preamble. So far, therefore, am concerned, without doubting the *bona fid* the promoters, I shall continue to oppose, by influence I possess, such crude and uncalled attempts at legislation, which have only ten to confirm my original conviction that remedy would be worse than the disease. President deprecated in passing the invari custom of placing the initials F.S.A. be those of F.R.I.B.A., as though it were consid that to be a Fellow of the Society of Antiquar was a better qualification for an architect t to be a Fellow of that Institute, and proce to deal with the financial question, marking that while they had enough pay their way, there ought to be a la margin between income and expendit He asked each member to endeavour to ind others to join, and referred with satisfaction the fact that another provincial body, the Dur Institute of Architecture, Science, and Art, seeking alliance with them. Much inconvenie had of late years been experienced in Lon practice by the complications arising from numerous additions which had been made different times to the Metropolitan Building of 1855. It was satisfactory, therefore, that Local Government Board proposed to introd during the ensuing session of Parliament "London Building Law (Consolidation) Bi the object of which was stated to be "to c solidate the Metropolitan Building Acts" "certain sections of the London Council (Gen Powers) Act 1890." But the Metropoli Building Acts required not only consolidat but amendment. He pointed out to Mr. Rit the necessity of accompanying this measure an Amendment Bill, inasmuch as only by m of consolidation and amendment, could the Bu ing Acts meet the requirements of the pre day. The Practice Standing Committee, du the last two years, had been engaged in the of preparing a complete draft of a sugge Amendment Bill; and this, when it had b approved by the Council, would be forwar to the President of the Local Governm Board. In referring to the new departure the Architectural Association embodied in t curriculum, the President said he only regre that they had to find a studio elsewhere, hoped that at some future day the two established architectural societies of Lon might be completely housed under one r While he had never engaged in an architect

ition, believing them to be very nearly an d evil, and not conducive to the real wel- the profession, he noticed with approval ature in the recent competition for the tion of the South Kensington Museum— aving limited the number of competitors t, they nominated four, and requested the l of the Institute to nominate the other while Mr. Waterhouse, as President of the ite, was appointed assessor. He believed is rivals in the competition would gener- concur in their satisfaction that the work en confided to their honorary secretary, ston Webb. The President passingly l to the Congress of Hygiene and Demo- held in London in August, suggesting Sir Arthur Blomfield might well, at a date, further elucidate the suggestive t dealt with in his address, of hygiene ation to art, the connection between was, Mr. Anderson thought, somewhat re-

As to the width of streets, he thought tutory limit to the height of buildings in etropolis of 90ft., prescribed last session, oo high, and should be reduced to 70ft. g the last six months, the President con- , we have suffered inconvenience from the of the carpenters and joiners of London, he lock-out by the master builders which l. All must deplore the necessity—if ity there be—for resorting to such methods ling with the constantly-recurring disputes en the representatives of capital and labour, arily destructive as they must to a great t be of that feeling of mutual confidence respect which should subsist between yer and employed. The strike in question he result of a claim on the part of the men orter hours and a higher rate of pay per -a claim which was resisted by the masters e ground that it would increase the cost of r to the extent of at least 11 per cent., , in their opinion, the state of trade would ustify any increase at all. At any time I not much faith in the interference of out- in trade disputes, because, although they o doubt actuated by the best of motives in ng their services, they are not always quali- y the possession of technical knowledge for osition they seek to occupy; but when, by e of my official position as President of the ute, I was approached by the parties to the nt dispute, and when, as the result of a rence, they mutually agreed to refer their ences to my arbitration, I did not feel at y to decline the proposal. While fully ciating the confidence and trust reposed in as your representative, you may readily re that the position is a most arduous one, ving grave responsibility. I do not need to e you that my award will be the result of us consideration and exhaustive inquiry. gh in the nature of such things it is scarcely expected that it can be perfectly satis- ry to both parties, I venture to indulge the that it may at all events conduce to the ate welfare of the great interests involved. e mean time, it is something to be thankful that in many a saddened home the glad gs have been welcomed, that the miseries privations which have been the necessary npaniments of the Carpenters' Strike have terminated. Contemporary architecture its vigour and originality of treatment, and y features that command admiration, even much that is discouraging. When, for ple, we reflect that of the thousands of es erected yearly in this metropolis, the vast rity are not designed by architects, but by s and employees of speculating builders, is tempted to despair of the domestic itecture of London; and it does seem ge that in face of this patent fact, the ic and the daily press persistently make itects responsible for abortions with which have had nothing whatever to do. It is enough to be deprived of the opportunity, pt in comparatively rare instances, of show- what our Domestic architecture might be if gned by specially educated artists; but it is strous that, although so deprived, we should be held responsible for the grotesque pro- ions of men who are uneducated, and whose ds are innocent alike of refinement and taste. oes not necessarily follow that every product n architect's brain must be beautiful and mand admiration. Truth compels the ission, that in the midst of much that is itorious and beautiful, there is not a little to regret in the work of contemporary architects, and it behoves us not to cast stones unless we are ourselves without sin. In much of the architecture of these latter days there seems too often to be an overstrained and unnatural craving for novelty. Some recent buildings, indeed, would seem to declare: Perish fitness, perish consistency, perish beauty, but at all hazards, Novelty! There is such a thing as selfishness in design: the indulgence in quaint personal conceits or idiosyncrasies, not necessarily beautiful because novel, instead of the manly effort to curb mere selfish quixoticisms, and to produce results which will be pleasing to the refined taste of others, because in harmony with what is beautiful. But it is surely possible to be unselfish in art as in life, and to indulge in almost infinite variety of treatment without offending the educated taste of others by disregarding those principles of artistic design which the testimony of past generations has approved as contributing to beauty. A noticeable instance of selfishness in architecture is afforded by the additions to King's College now in course of erection at the eastern end of the river façade of Somerset House. I know not what justification can be urged for that building on the plea of necessity; but to have studied the requirements of accommodation only, without regard to cherished surroundings, is selfishness of the worst description. One would have fancied that the façade of Somerset House would at least have been held sacred from innovation or injury, and it is with astonishment and grief that I see one of the grandest public buildings in London wantonly sacrificed to the unneighbourly selfishness of modern utilitarianism. Should it be possible still to take action with the reasonable prospect of a successful issue, I shall be glad to join in any movement having for its aim the removal of a structure which cannot fail to excite the indignation, not merely of lovers of art, but of all, because our public buildings are trusts for the protection of which each generation is responsible. In conclusion, he urged that the true principles of design should never be set aside for any considerations of novelty, however tempting. They might in their architectural creations conform to established canons of art, and yet freely indulge the fancy in infinite variety of treatment, whether of form, or ornament, or colour. In our contemporary architecture he longed to see the more apparent recognition of such controlling principles of design: even in their too common absence he discerned elements of hope and promise, the true development of which would inaugurate what he for one regarded as "a consummation devoutly to be wished," the advent of pure Classical taste.

Mr. A. Waterhouse, R.A., past-president, proposed a vote of thanks to the President for his address. The recent controversy as to whether architecture was an art or a profession was not to be regretted, and the President's definition of an architect as a three-sided creature—an artist, a skilful constructor, and a man of business—put the whole matter in a nutshell. The President was equally happy in his description of the result of the obligatory examinations, which had been most successful, and were destined to be still more so when made progressive. With regard to the election of Fellows, he supposed that they would in future be mainly recruited from the ranks of the Associates; but, personally, he hoped a door would always be left open for the admission of any architect of proved ability who should not have been so fortunate as to have passed the examination. They all cordially agreed in thanking the board of examiners, whose performance of their duties had been beyond all praise, and also beyond any recognition the Institute could hope to offer them, although he agreed that they should be remunerated. He cordially concurred in the tone of the President's closing remarks, deprecating selfishness and unneighbourliness in executing works; indeed, there was for all a vast field open for self-abnegation in this respect.

Lieut.-Col. Lennox Prendergast, Hon. Associate, seconded the motion, which was carried by acclamation, and briefly acknowledged by the President.

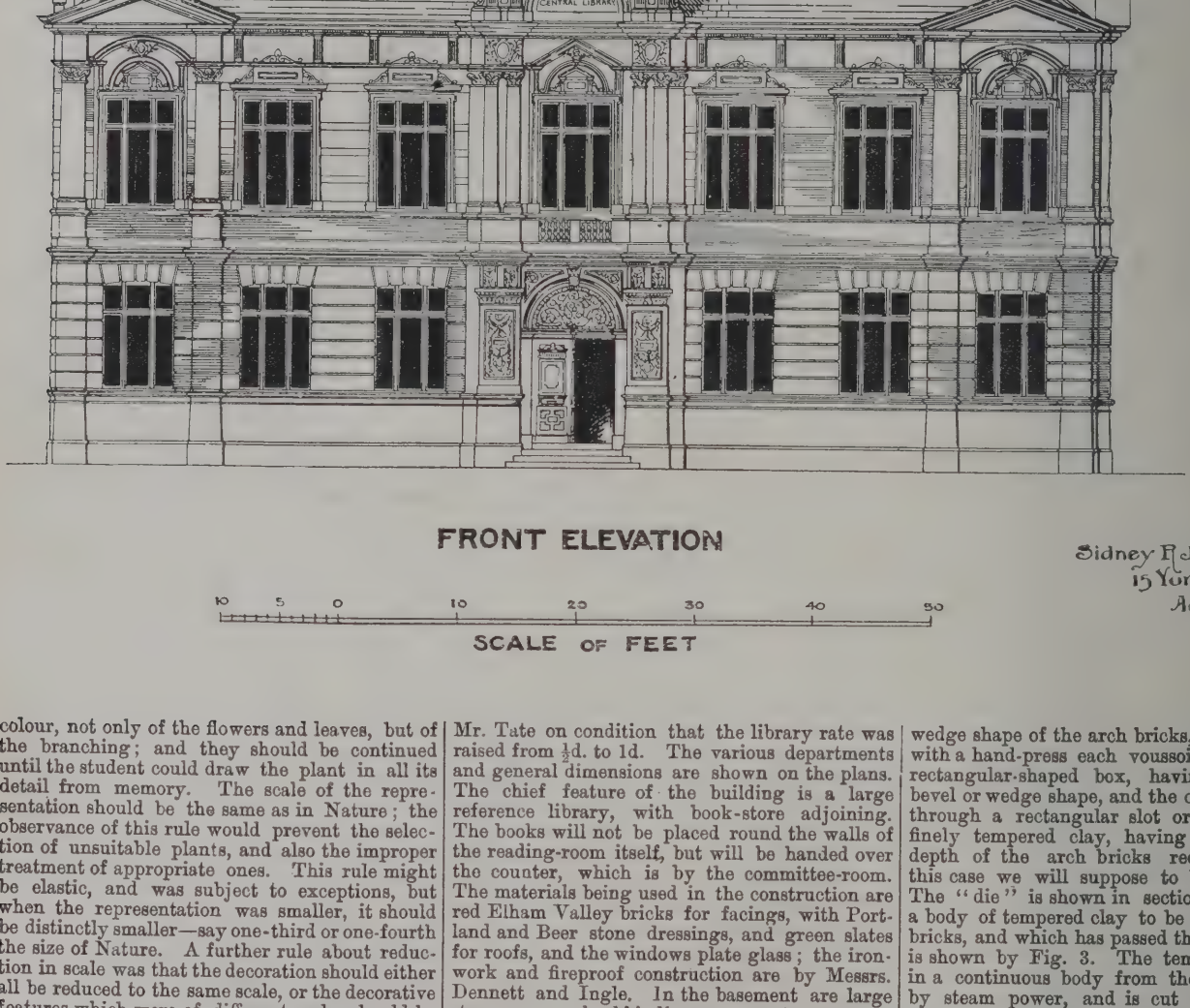
Mr. Aston Webb moved a resolution expressing the regret that the members felt in seeing the additions now being made to King's College, which were damaging to the noble river front of Somerset House, and requesting the Council to communicate with H.M. Office of Works and with the authorities of King's College on the subject.

Mr. J. Hebb thought that H.M. Office of Works had nothing to do with the work; but Mr. Webb replied that they had leased the land to the College. Mr. A. Payne regarded the resolution as not half strong enough; but Professor Kerr, in seconding the motion, expressed his belief that the authorities of King's College would, if representation were made to them in the courteous tone adopted in that resolution, be willing to ameliorate the unsightliness of the addition. Mr. William Woodward asserted that the work was being done under the direction of a Fellow of that body; but an expression of feeling was manifested that the name should not be mentioned. After some further discussion, the resolution was unanimously adopted.

THE DECORATIVE TREATMENT OF NATURAL FOLIAGE.—III.

EDUCATED NATURE was the chief topic of Mr. Hugh Stannus's third Cantor lecture, an epitome of which we reproduce from the *Society of Arts Journal*, by the author's permission. The lecturer observed that while the whole of the vegetable kingdom was at man's use for decorative purposes, he possessed, and should exercise with discretion, his right of selection or rejection. For the ordinary decorative work, the selection would be limited by æsthetic considerations, only such plants being chosen as appeared beautiful at first impression to the eye. Plants of ordinary growth should be chosen. Some orchids and other flowers, which appeared to be freaks of nature, were interesting in scientific botany, but were not useful in artistic pattern-work. If the interest of the observer were attracted by the representation of a rare or abnormal flower in the pattern, and he proceeded to examine it closely with the attention of a botanist, but found the representation inadequate, as it necessarily would be as a consequence of the technical exigencies of pattern-work—he was disappointed and tantalised. It was, therefore, better to avoid odd or rare plants, and to select those which were familiar and numerous. Simple plants should be chosen. Those which were too intricate and minute should be avoided. In judging of this, artists had to take the material into consideration. Flowers with much detail in stamen and pistil might be possible in embroidery, but were impracticable in mosaic; and leaves that were much divided were easy in printed work, but would be difficult to couch in embroidery and troublesome to fit in inlaid work. Single flowers were most easy of treatment, and double and compound flowers should be avoided by the student. Greenhouse plants, as a general rule, should be avoided, and also gardeners' flowers without exception. The gardener aimed to produce something *new*; the artist sought to do his best with the old. The gardener aimed to produce *double* flowers; for the artist the simple beauty of Nature sufficed. Malformations should be avoided, and so also should all plants of strongly marked individual characteristics, and the so-called ornamental flowers. The objection to the latter class which included the ivy, convolulus, fuchsia, and geranium, was that the shapes were too pronounced to coalesce into the general texture of a pattern. Hackneyed flowers and symbolic plants should also be rejected. Ramifying plants were most easy to use in connected work, the division into branches lending itself to the diffusion of the pattern over the ground, and bulbous plants were useful in powderings. Supple plants were more easily treated than those with rigid stems and branches. The student should select his plants with reference to the space to be filled. In panels of ordinary forms any plants might be used, but in panels of extreme shapes the choice was limited by the characteristic manner of growth of the different plants. A sufficiency of leaves to overlap the stem at intervals was necessary. Leaves which were broad in comparison with the stems were good, when narrow there was a want of clearness, and the pattern might have a "liney" effect. It should be remembered that line and shadow were characteristic of artificial foliage, while in natural foliage mass and colour were necessary. Dissimilarity between the leaves and petals in mass-shape, edge-treatment, colour, or texture was helpful; when the flowers and leaves were the same in shape or colour, a want of variety and clearness was felt. The preliminary studies of the selected plant should be made from various points of view, carefully copying the method of growth and

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FRONT ELEVATION

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Adelphi WC

SCALE OF FEET

colour, not only of the flowers and leaves, but of the branching; and they should be continued until the student could draw the plant in all its detail from memory. The scale of the representation should be the same as in Nature; the observance of this rule would prevent the selection of unsuitable plants, and also the improper treatment of appropriate ones. This rule might be elastic, and was subject to exceptions, but when the representation was smaller, it should be distinctly smaller—say one-third or one-fourth the size of Nature. A further rule about reduction in scale was that the decoration should either all be reduced to the same scale, or the decorative features which were of different scales should be applied in different parts of the scheme, and there should be strongly-marked dividing-lines between them. Mr. Stannus held that the aims in design with natural foliage should be:—(i.) Clearness in the composition; (ii) naturalness in the treatment; (iii.) acknowledgment of the prescribed shape; and (iv.) distribution over the given surface. As to the first point, a general direction was that the student should not attempt to represent subtle foreshortening with incomplete technical appliances. Some thirty of the faults which should be avoided were pointed out, among them the overlapping of flowers by leaves or stems, the covering up of the ground by leaves, double complications (such as the twisting of leaves and then overlapping in the same design), the covering of the ends of leaves, coincidence of edges and of centre veins, the overlapping of half a stem, touching of leaves, alignment, and axiality. These suggestions were all negative, the author remarking that no positive rule was necessary in the treatment of nature. The rules were all to the end that the design should be kept clear (*i.e.*, simple and easy to comprehend) and natural (*i.e.*, that the artist should withhold all artificial interferences of his own ideas), and should give nature a chance. He could not, by taking thought, improve upon it: he should see that he did not, by extraneous treatment, spoil its beauty.

TATE CENTRAL LIBRARY, BRIXTON.

THIS building, which is now being erected, is the second gift of Mr. Henry Tate, J.P., to the parish of Lambeth, and will cost (with the site) £15,000, this sum having been promised by Mr. Tate on condition that the library rate was raised from ½d. to 1d. The various departments and general dimensions are shown on the plans. The chief feature of the building is a large reference library, with book-store adjoining. The books will not be placed round the walls of the reading-room itself, but will be handed over the counter, which is by the committee-room. The materials being used in the construction are red Elham Valley bricks for facings, with Portland and Beer stone dressings, and green slates for roofs, and the windows plate glass; the iron-work and fireproof construction are by Messrs. Dennett and Ingle. In the basement are large store-rooms, bookbinding-room, strong-room, staff-rooms, heating-chamber, &c. The contractors are Messrs. F. and H. F. Higgs, of Station Works, Loughborough Junction, S.E., and Mr. E. L. Schneider is clerk of works. Mr. Sidney R. J. Smith, A.R.I.B.A., 15, York-buildings, Adelphi, who has also done two other libraries and other works for Mr. Tate, is the architect.

NOTES ON TERRACOTTA.*—IV.

TREATMENT.

IN terracotta not infrequently is seen the extrados of voussoirs formed to a brick size, that is 3in., and continuing in one unbroken brick to the intradosal curve, as at *a*, Fig. 1. This, of course, is a matter to be determined by the cultured and refined taste of the architect. It is mentioned, however, because of the likelihood of these monosyllabic voussoirs—if one may so speak—being less true in form than those made up of the conventional lengths of 8in. and 4in. respectively, as at B, Fig. 1, and which long usage and custom sanction as the most pleasing proportions. If the voussoirs are to be in one piece, then it would be better, perhaps, to quite depart from the brick size altogether, and treat the arch from a stonework point of view, with "loaded" terracotta voussoirs. The concentric curve of the label mould is more accurately retained, both in the manufacture and the fixing, by working it to brick sizes, *i.e.*, 3in. or 4½in. measured along the line of curve.

There are two ways in use of producing the wedge shape of the arch bricks, one by press with a hand-press each voussoir separately i rectangular-shaped box, having the requi bevel or wedge shape, and the other by press through a rectangular slot or "die" a body finely tempered clay, having the height depth of the arch bricks required, which this case we will suppose to be 12in. by 4 The "die" is shown in section by Fig. 2, a body of tempered clay to be cut up into ar bricks, and which has passed through the "di is shown by Fig. 3. The tempered clay iss in a continuous body from the "die," wor by steam power, and is cut off by the cl worker in suitable lengths by means of the w or bow-saw, Fig. 7. The detached portion clay is now placed in the arch-box, Fig. 4, or work might so be arranged that the clay iss direct from the "die" into the arch-box, wh is so arranged that the clay-worker, by forci his wire or bow-saw down the correspondi slots *a a*, *b b*, *c c*, *d d*, E E, F F, will divide block of clay into so many voussoirs or ar bricks, and by an additional cut in the direct of the length of the box, he can divide them i 8in. and 4in. pieces, as at B, Fig. 1, if necessa In producing solid voussoirs by this la method, it is generally found necessary to fi "bell" at the bottom of the "die," at *c*, F 2, for the purpose of compacting the clay forcing it into the angles of the "die," wh otherwise it might not fill. The resulting bl of clay is therefore produced with a correspondi hollow, as shown at D, Fig. 3, and at F in arch-brick, Fig. 5. In the process of dryi the contraction is not equal, owing to the holl in the back edge of the brick, the contracti being greatest at the front edge in consequence the greater amount of clay present. Consequent the solid voussoirs when fired are found to ha more or less, hollow faces, as shown somewh exaggerated by the dotted concave line, Fig. the hatched lines, representing the brick wh pressed in the clay, and the dotted lines the br when dried or fired. This is another reas against forming the arch-bricks in one unbrok piece, as at *a*, Fig. 1. The hollow is formed a to save the cost of railway freightage. T label mould, Fig. 1, when made up of brick si is generally formed of moulded bricks wh sides are at right angles with the top and bott beds. The label mould should be pressed throu

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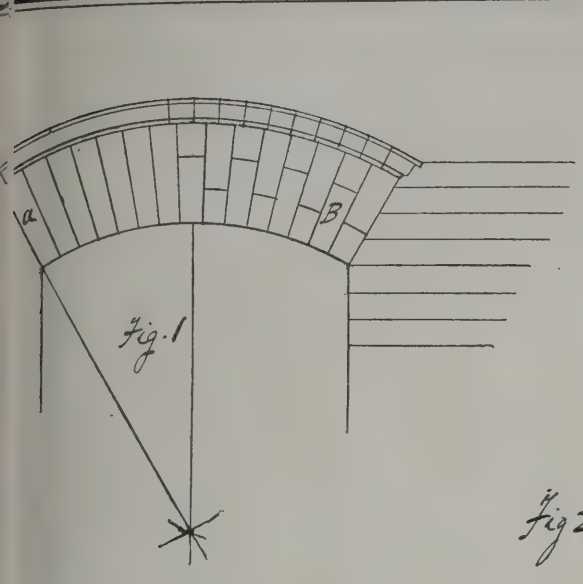


Fig. 1

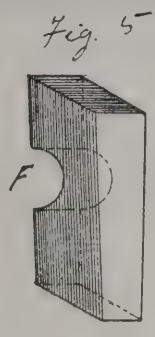


Fig. 5

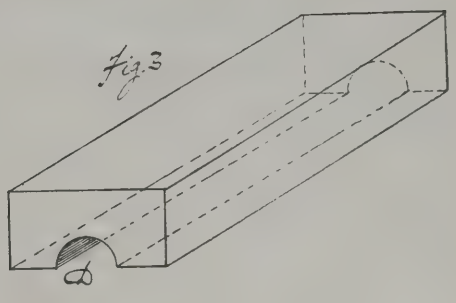


Fig. 3

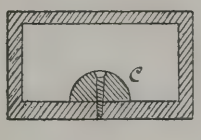
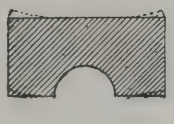
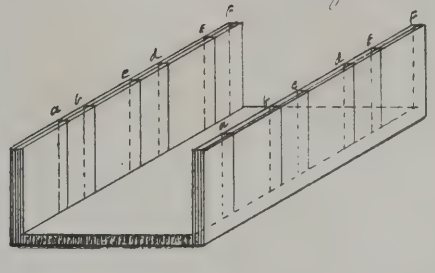
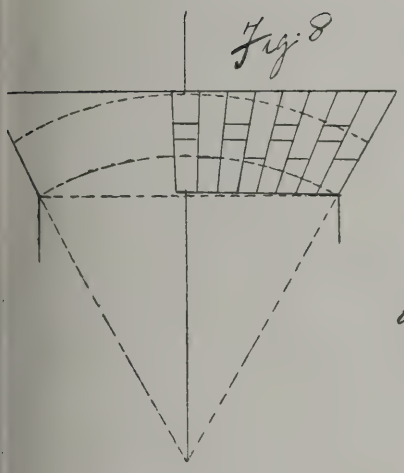
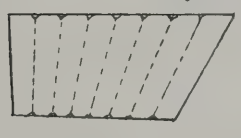


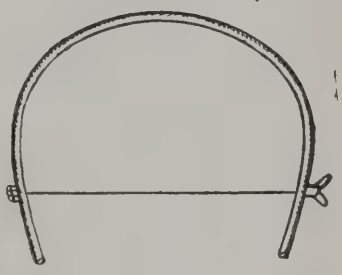
Fig 2


Fig 6


Fig 4


Fig. 8


Fig. 9


Fig. 7

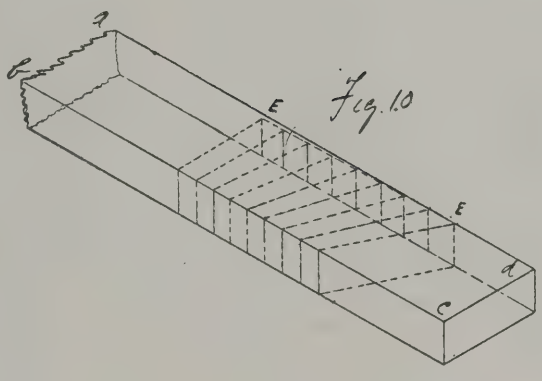


Fig. 10

noulded "die," and on to a receiver having the rvature of the outer curve of the label, as seen ıen surmounting the arch, but inverted. The lial joints can then be cut in an arch-box some- ıat similar to that already described, but having oncave bottom of the same curve as the re- ver. There are many ways of doing these ings which suggest themselves to the practical d intelligent worker.

The "die," or slot, is generally made of beech- ood, lined with fine moleskin attached to the ner faces by being tacked on with small clout ils. The moleskin has to be carefully stretched d accurately fitted into the profile for obvious asons. The moleskin is necessary to obviate e friction that would otherwise be set up be- een the wood and the clay in the passage of the ter through the "die." One effect of the moleskin ing is to deprive the resulting clay of sharp rises, a very necessary precaution in the manu- cture. The edges of all terracotta should be ghtly, but not appreciably, rounded, by which eans they are less likely to get flushed, either the stages of production or during transit to eir destination.

The camber, or flat arch, so-called (Fig. 8), is rmed in a manner somewhat similar to the gment-arch; but in the camber-arch each oussoir has a different length and bevel. The ode of procedure is as follows:—Set out one-half of the camber, including the key course, take a sheet of tin or zinc, cut it to the shape of the half-arch with the courses marked thereon, and a small V cut to mark each joint on the top and bottom edge, Fig. 9. Place this mould on the upper face of the block of clay, *a*, *b*, *c*, *d*, Fig. 10 (which has been forced through the "die" as for the segmental arch), marking with the edge of a knife the joints on the clay. Reverse the mould, and repeat the operation for the remaining half of the camber, keeping the bottom edge of the mould flush with the soffit of the clay, Fig. 10. The top and bottom edges of the clay block being parallel, there will be some surplus clay to remove at E E, representing the rise or camber of the arch. The arch when *in situ* will be pushed up to the line *a d*, producing the required soffit camber which custom sanctions as $\frac{1}{8}$in. to a foot span. The courses may be cut out by the bow-saw being forced down the outer edges of two trying-squares held at the corresponding joints along the edges, the resulting voussoirs being shown by dotted lines. Where many of these have to be made it would be cheaper to make them in arch-boxes. Fig. 8 is shown in Flemish bond—*i.e.*, 6in., 2in., and 4in. This would necessitate a false-joint (the closure), which, though occasionally done in gauged-brickwork, would be hardly permissible in terracotta. The camber-arch in old brickwork seems to have been treated as embodying the principle of an inflexible truncated wedge, rather than as a lintel containing a secret arch (shown by dotted curves, Fig. 8), the skewbacks being cut to a very acute angle, apparently to increase the area of the resisting surfaces. An angle of from 60° to 70° is now considered the most pleasing angle of skewback.

(*To be continued.*)

HOT-WATER ENGINEERING.—XXI.

Supply of Hot Water for Baths and Domestic Purposes.

Fixing High-Pressure Boilers for Temporary Low-Pressure Purposes.

IT is a very common requirement, when a new range is ordered, that it may have a high-pressure boiler, but only to be in readiness for an apparatus not yet erected, and which may not be wanted for some months or a year to come. The object in having the high-pressure boiler is to save cost and trouble of dismantling the range and changing the boilers when the anticipated system of pipes is erected. This is an arrangement easily made, as a high-pressure boiler, with certain precautions, can be simply adapted to low-pressure purposes only, either for a limited time or for good, should the apparatus never be erected after all.

There are two or three ways of doing this, but that which costs the least in the first instance costs the most when the conversion is effected, and *vice versâ*. The boiler must necessarily be boot-shaped, and is of the ordinary high-pressure character, flued underneath and up the back. As the flues take up a deal of room, this boiler has a disadvantage over the ordinary flueless, low-pressure boot-boiler, in not holding so much water.

Sometimes the work is arranged by simply substituting a flued high-pressure boiler for the low-pressure one, and fixing it as Fig. 72 in the last paper; and to prevent its heating too much, the flue under the boiler is stopped up with fire-brick, which is, however, removed when the conversion takes place. This is not a method to be recommended, as when the pipes are afterwards about to be connected, it becomes necessary to partly, if not wholly, unset the range, and a deal of extra work is entailed. The cheapest commendable method is to put in a flued high-pressure boot-boiler, and to connect the flow and return services in the usual way, and carry them

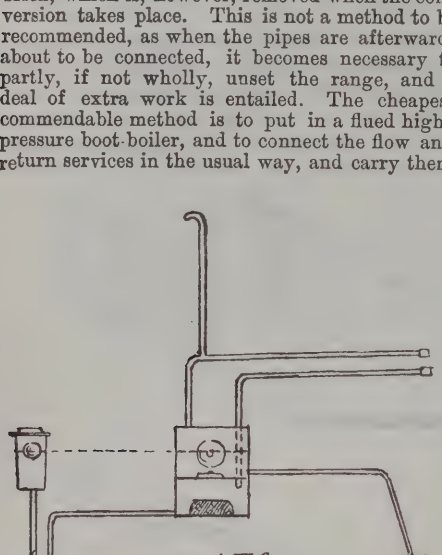


FIG 74

through the jamb as Fig. 74. The ends of these pipes must be capped (closed); but the flow pipe would have an expansion pipe connected to it as shown. The cold supply and draw-off services would be connected in the same manner as explained in the last paper, and as shown.

As this is a flued boiler, and the flues will be needed when the system of pipes is connected to it, it is best to complete it in this respect when first setting the range, making the back flue to the boiler, and putting the necessary damper in it; but stopping up the flue under the boiler with firebrick until such time the conversion takes place. If the flue is not stopped, and the flame is allowed to pass under and up the boiler while it is used for low pressure purposes only, the boiling will be so furious as to be unbearable.

When the time comes for the hot-water apparatus to be connected, the whole system of pipes can be completed down to the kitchen floor before the range is interfered with. Then, when the pipes are ready for connection, all that has

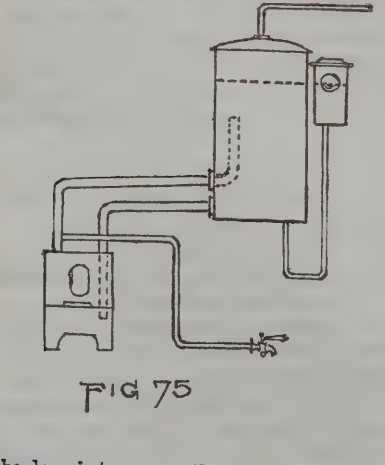


FIG 75

to be done is to uncap the flow and return from the boiler, connect them with the new services; then stop off the expansion pipe and cold supply services, but the draw-off service can remain. If the new apparatus is on the cylinder system, then this draw-off will be objectionable; but if the tap has a loose key it can be retained as an emptying service. By arranging the pipes in this manner it will be seen that the range fire need only be put out for a few hours when connecting up.

If there is a certainty of the conversion taking place, there is a still better method that can be adopted. This method is a little more expensive in the first place; but is ultimately cheaper when the apparatus is completed. By this arrangement the cylinder is introduced into its proper position to remain there permanently, as Fig. 75. Between the cylinder and boiler is carried the necessary flow and return service, of full size, and not to be afterwards interfered with. Thus far the apparatus is similar to what would be erected if the complete system of pipes was to be added at once.

When the cylinder (of full size) is used in this manner the flues to the boiler are completed and left open. It would not do to stop them with fire-brick as suggested with the last method, as we have nearly the full bulk of water to heat in this case. The expansion-pipe is commenced from the top of cylinder, as shown, but is almost immediately turned off, and terminates either over the feed-cistern or through an outer wall, as until the conversion takes place it acts as a steam-pipe only. The cold supply is furnished by a feed-cistern and ball-valve, arranged to fill the cylinder about three-fourths full. The cylinder can have a flange near the top in readiness for the secondary return, but it must be plugged until such times as it is needed. The temporary draw-off service should be taken from the flow-pipe near the boiler, and either carried to the jamb or other low point. It should not be carried up anywhere level with the cylinder, as it has afterwards to answer as an emptying service.

When the conversion is effected in this case, there is little to be done beyond the actual carrying out of the system of pipes contemplated. The junction of the new services with what exists is simplicity itself. In the first place, the cylinder and boiler and the flow and return pipes between them are complete and need no alteration. The expansion-pipe (secondary flow) from top of cylinder has to have part of it removed, and is then united to the new service. The secondary return is connected into the cylinder, the flange being provided ready for it. The cold supply requires the feed-cistern and ball-valve taking out of it, and a stop-cock inserting, and this is complete, supposing the service to the ball-valve was not taken from one of the general house services and that it is of full size. The draw-off service from the primary flow must now be considered an emptying service, and the tap should have a removable handle. It will have been understood that when providing the cylinder in the first place, it must be of sufficient strength to withstand the pressure it will afterwards experience when in direct connection with the house cistern.

The next paper will treat of estimating.

(*To be continued.*)

MODERN FARM BUILDINGS.*

A PRACTICAL work on farm buildings has long been wanted,—we mean one that will give, not merely the structural details, but the agriculturist's and land agent's views. Mr. A. Dudley Clarke, F.S.I., land agent, has brought out, in book form, a series of articles which have recently appeared in the *Estates Clerks of Works Journal*, which lays down, in a convenient form, the principles of homestead planning. Mr. Clarke has avoided writing what is so common nowadays—an elementary treatise on buildings of this kind, in which details of all kinds are given, but few plans. He has rather plunged into the principles of arrangement which should be observed in planning these buildings. There has been a great deal too much waste in the buildings and food preparation arrangements, resulting in the erection of homesteads entirely unsuited to the requirements of the farm; the stock has been placed a long distance from their food stores; these latter have been badly arranged for access of carts, preparation, and mixing, and often placed in the wrong position for sheltering the yard's stock. In a good plan the buildings should, as far as possible, "fence themselves in" with the roadways. Mr. Clarke gives a model plan on the "block" or "attached" system w he designed for the Royal Agricultural Soci Kilburn Show, which received a silver medal is for a farm of 400 acres, 100 of which is past The accommodation for stock is large, as requirements were for a highly productive f chiefly arable. The plan occupies a rectan the food stores are located on the north, and of the long sides, projecting from which at r angles are three blocks of buildings, the ce one is cow and bullock houses, and the side are piggeries and stables. Intersecting th three ranges or blocks is a feeding passage, wh divides the intervening open spaces into covered yards, two for eight beasts each, and for ten beasts each. A roadway at each the narrower ends, parallel to these blo separates the implement and poultry shed, the cart and implement shed, which sheds f the boundaries on the east and west sides. Th is also a south roadway which cuts off the end the four blocks we have mentioned, and two o yards and sheds. This system places cattle food stores in the centre; the west side being horses, carts, and implements; and the east the domestic stores, pigs and fowl houses, latter being on the farm-house side. The blo economise building, and form admirable shelt to the yard on the north, east, and west sid "The roofs," says the author, "are par carried on brick pillars, 10ft. 6in. apart, fr centre to centre, and the compartments divided by dwarf walls, 4ft. 6in. high, exc the stables, the wall of which is carried up to t eaves in order to keep the circulation of quite distinct from that in the yard." Econo is effected by this dwarf walling. The yards covered or open with lean-to sheds on south food stores to form feeding passages and sp roof sheds for the middle feeding passage a boxes to south yards. Corrugated iron is su gested as a covering for the yards instead of h slating, fixed without rafters on the purli Several points of advantage are to be found in th arrangement. The food stores form two-sto buildings on the north side. The straw and cat food are well together, and can be easily mixe Grain or cake in the granary above can trucked into the adjoining cake room and grou and shot down to the mixing room below. Th under one roof is the straw barn at the we end, the mixing floor; and over the chaff-cutti floor, the root house; and over the corn and ca stores, the fodder and winnowing floor. T communication between these upper stories fro the straw barn allow a waggon laden in the ba to unload under cover, and the hay for cutti corn and cake for stock, to be trucked along its proper stall. Saving is effected also by t winnowing floor being below the granary. Oth points are the position of the cart shed a implements in one block to the east near to t stables, the doors in mixing-floor to admit hor and cart for prepared food, &c. The concentr tion of labour is aided by a homestead of th compact class, where the stock can be attende to and fed under cover. A simpler a more economical plan is shown in Fig. designed for a farm of 400 acres, on third of which is pasture. In this pla the outer wings or blocks on the east and we are omitted, and the plan partakes in form of th letter ⊓, the north side being occupied by the foo preparation block, the centre projecting block f cow or bullock stalls, the east block for pigs an cattle near the house, and the west for stables an implements, with a cart-shed facing south at th extreme end. This plan is carefully though out, and shows the requirements of a well-man aged honestead for an arable farm. The wing are a little extended, and return by the cart-she and coach-house and office on the south side but the food block is a little shortened, so that th block plan is nearer a square of about 130ft. eac way. These return ends on the south side hel to shelter the yards. There are forty-four stall for fatting or dairy cattle, and yards for fort more, all easily approached under cover from th food-house. The cattle-yards are well fenced in the two upper ones next food-block are covered Plans for a dairy homestead follow, arranged o the same general principles, also a plan for a arable farm of 250 acres. The author has thu illustrated a useful class of farms, and the smal arable farm plan given represents a good model showing a centre single cow-house for twenty cattle, and an open yard on each side, wit stables and shed on one side, and piggeries an shed on the other.

* Modern Farm Buildings: their Construction and Arrangement. By A. Dudley Clarke, F.S.I., Land Agent, &c. Winchester: *Hampshire Observer* Office.

he remodelling of old homesteads forms a ul part of Mr. Clarke's treatise, and is illus- ed by plans of remodelled farm buildings, ving the rearrangement and adaptation of barns when flail-threshing was in vogue. e valuable observations are made on the stores, and their construction and fittings; on the important subjects of cowhouse con- ction, open stockyards, covered yards; one l king-post roof for a yard of 32ft. wide is vn; also the proper mode of ventilation at eaves and ridge. These are illustrated by ıs and details. Stables, piggeries, and farm- ses and dairies are also briefly discussed. We say that Mr. Dudley Clarke's little treatise be found very serviceable by all agriculturists, l agents, and architects.

BOOKS RECEIVED.

lic Libraries: a History of the Movement, and ual for the Organisation and Management of s-Supported Libraries, by THOMAS GREEN- D, F.R.G.S., 4th edition, revised (Cassell and pany).—Mr. Greenwood's useful manual is ight up to date, several chapters have been ritten, and the volume now extends to nearly pages. The appendices comprise suggestions promoters, opinions of public men, the text he Act to Amend the Public Libraries Acts, 0, including the Schedules, the Museum, and mnasium Act, and sundry other information. he body of the book the same illustrations of ns and views appear, but additions are made. e author has intrusted to Mr. James D. Brown, arian of Clerkenwell, the writing of two pters, entitled "The Formation of Public raries" and "Library Administration," and se will be found to give many useful sugges- ıs. The same gentleman, in conjunction with . J. Potter Briscoe, borough librarian of the ttingham Public Libraries, has revised the ofs. There is a capital and comprehensive ex, compiled by Mr. Herbert Jones, chief arian of the Kensington Public libraries, and volume is very complete.——*Architectural spective:* the operations of the draughtsman drawing a large house in linear perspective, h hints in pen-and-ink drawing, by F. A. RGUSON, architect and surveyor (London: sby Lockwood and Son). This is a practical atise for draughtsmen, and does not attempt enter into theoretical principles. It is fully ıstrated by a series of progressive diagrams of ouse. From a glance at the instructions given, ich are simply stated and illustrated, the young ughtsman may derive an easy method of aining the perspective lines of a building with- recourse to the centrolinead or other more nplicated methods. The plates of illustrations ven at the end of book show the process, the line being first put in. The *modus operandi* of ting the ground-plan on the board, drawing the ound line, horizontal line, height line, and ing the vanishing points is given. Bird's-eye, rspective, interior, or parallel perspective are ated, and the author gives various examples, d a simple method of making a temporary ıtrolinead. The diagrams are clear, but the ded example on Plate 3 does not look right in perspective—the circular oriel, for instance, incorrect in its curve. We can recommend e instructions to all who wish to learn the liments.

A stained-glass window has been placed in the ıth side of the chancel of Otham Church, Kent. is in the Decorated style, consisting of two trefoil aded lights, surmounted by geometrical tracery. ıe light represents the Saviour seated at the well th the woman of Samaria, and the other depicts ›rcas distributing garments to the poor, with two sciples in the background. The artists were essrs. Lavers, Westlake, and Barraud, of Endell- reet, Bloomsbury.

The Mayor of Richmond, Sir J. W. Ellis, M.P., Saturday afternoon laid the foundation-stone new municipal buildings to be erected in Hill- reet. The freehold site of the intended buildings ıd the pleasure-gardens adjoining were the gift of e mayor. The buildings, which are to be con- ructed from the designs of Mr. W. J. Ansell, of aple-inn, will include a council-chamber, over- oking the river, committee rooms, and rooms for e various borough officials. The buildings will of the Elizabethan Renaissance style, the front ced with red bricks, having terracotta or stone rings, cornices, &c., and the roof covered with red e ridges. The cost of the buildings is £13,000. r. Brooking is the contractor.

Building Intelligence.

BEDFORD.—The new grammar school buildings were opened on Thursday in last week. The school has been erected from plans prepared by Mr. E. C. Robins, F.S.A., of London, but owing to his ill-health the superintendence of the work of construction has devolved upon Mr. John Slater, of Bedford-row. It is built on the "central hall" system, the classrooms being built on three sides of a rectangle, the fourth side forming the front elevation. The inclosure forms a large hall for purposes of assembly and entertainments, the number of persons that it will seat being 1,200. The style is Tudor, and the walls are of brick, with Weldon stone dressings. The principal features of the front are the six large traceried windows, the arcades forming the ambulatory, the square tower with turret for flagstaff and niche for the founder's statue, dormer windows, and battlemented walls, with high pitched roofs of tiles. There are 32 class-rooms, accommodating from 30 to 40 boys each, calculated on the basis of 18 superficial and 250 cubic feet for each boy, and the total number of scholars so provided for is 1,026. The contract cost of the main building was £20,000.

BIRMINGHAM.—A new school, which has been erected by the Birmingham School Board in Floodgate-street, was opened on Monday. This is the forty-second school built by the Birmingham board. As the board were limited to a site of 3,019 square yards instead of 6,000 yards which they wished to obtain, instead of erecting a school on the single-story principle, they were compelled to put up a three-story building. The schools are built of brick and terracotta, with concrete floors throughout and double staircases. The total cost of the school is £10,666, and accommodation provided for 1,110 children. The erection of the building has been carried out by Messrs. Sapcote and Sons, to the designs of Messrs. Martin and Chamberlain.

CHARLTON, WANTAGE.—A new chancel, with organ chamber and vestry, was opened on the 28th ult. It is built as an addition to a temporary church, erected 40 years since, and which will remain as the nave until the new one takes its place. The chancel is built of local red bricks inside and out, the eastern end being apsidal, the roof being of pitch pine, panelled, left clean, and covered with Broseley tiles. A two-light window is placed in each of the canted sides, the central space being blank, and a three-light window in south wall. A brick chancel arch and low brick screen separates nave and chancel. The altar is raised four steps, behind which is a simple shelf, with panelling above, and rich silk dossal and wings. The men's and boys' desks are of English oak, and the floor of tile paving, by Carter and Co. The work has been carried out from designs by Mr. Withers, architect, at a cost of £600, by Messrs. Gregory, Whiting, and Stroud, all of Wantage.

EDINBURGH.—The dedication of the new chapter-house of the Cathedral Church of St. Mary was performed by Bishop Dowden on Saturday afternoon. The original design of the cathedral, of which the late Sir Gilbert Scott was architect, included the erection of a chapter-house, and when the cathedral was built the foundations of such an adjunct were laid at the north-east corner of the edifice, but lack of funds prevented its being proceeded with. The design is strictly in keeping with that of the cathedral. The designer of the house is Mr. J. Oldrid Scott, son of the original architect, and the contractors Messrs. Morgan and Sons, Glasgow, the chief partner of this firm having been clerk of works to Sir Gilbert Scott when the cathedral was built. The internal facing of the walls is of Farley Down stone, while the groined roof is of Overwood stone. In form the addition is square, and above the windows the sides assume an octagonal shape. The vault is supported by a central column of polished Shap granite. The floor has been laid with tiles. The cost of the work was about £5,000.

PENARTH.—The new church of All Saints, which has been erected at a cost of about £6,300 in Stanwell-road, was consecrated on Saturday. The church was designed by Mr. Coates Carter, of Cardiff, the diocesan architect, and the contractor was Mr. Purnell, of Penarth. It consists of a nave 73ft. by 25ft. wide between the arcades, and 55ft. between the aisle walls, with a chancel 25ft. by 33ft. The oak seats accommodate 500, and, in addition, there is space for 100 chairs. The east window is of six lights, and has an internal detached order of tracery.

WAKEFIELD.—The walls of the Bishop's Palace at Wakefield are rising fast, and on Saturday week a memorial-stone was laid inside the chapel in the north wall. The building is of "purpose made" red bricks, having stone sills with brick mullions. The covering is to be of blue Welsh slate. The plan consists of a porch with ceiling groined in brick, beneath a low tower of four stories, leading into an outer hall, and large central hall, to serve as a general reception-room, with staircase and lantern and open roof. Out of this hall are entered the drawing-room, chaplain's-room, library, and chapel; and a gallery round leads to the various bed and dressing-rooms. At the top of the front stairs is a lobby, which leads to the examination-hall over the chapel. The chapel is of Domestic character, with a flat ceiling. The dining-room is next the kitchen wing. Accommodation is provided also for twelve candidates for Holy Orders, with a separate chamber for each, approached by a small staircase leading from the hall. Mr. William White, F.S.A., is the architect.

WHITEINCH, GLASGOW.—On Saturday the Orphanage at Whiteinch, in connection with the Glasgow Institution for Orphan and Destitute Girls, was opened. Built from plans by Mr. S. Henbest Capper, M.A., A.R.I.B.A., of Edinburgh, the new home stands on an acre and a half of ground at the west end of Victoria Park. A south-easterly or south-westerly exposure is given to all the principal rooms. On the ground floor are the living rooms. The system of small dormitories has been adopted, six in all being provided for the sixty girls. The bedrooms are on the first and attic floors, special provision being made for the senior girls; and there are lavatories and bath room and offices on each floor, while the sick-room is placed on the first floor. Externally the building is faced with red stone, with darker red dressings, and high-pitched green slated roofs. The architecture is Scottish Domestic of a simple type.

CHIPS.

A memorial cross of Scotch red granite, 9ft. in height, is about to be erected at Bishopthorpe, York, in memory of the late Archbishop Thomson.

The ceremony of swinging the first cable of the North Sydney Suspension Bridge, at North Sydney, N.S.W., which, it is stated, will be the third largest in the world, took place on Sept. 21st. Mr. Howard Joseland is the architect, Mr. J. F. Coyle, C.E., the engineer, and Mr. A. Johnson the contractor.

A memorial tablet to General Gordon has been erected in St. Thomas Church, Exeter, on the southern side, immediately beneath his grandfather's monument, which was erected at the beginning of the present century. The memorial consists of a tablet cut in white marble, with a background of warm coloured alabaster, and has been executed by Messrs. Harry Hems and Sons, of Exeter.

It is now proposed to demolish the old city church of St. Barnabas, Liverpool, and build in its stead a new church in the parish of SS. Simon and Jude's, Anfield.

The east window in the south aisle of Tring Church has been filled with stained glass as a memorial to the Brothers Brown. Mr. C. E. Kempe, of London, was the architect, and the cost was £285.

Mr. T. E. Maltby, for the past four years borough surveyor of Dorchester, has been elected borough surveyor of Guildford, at a salary of £300 a year, from among 160 candidates.

Sir H. Doulton will present a statue in terracotta of Mr. Henry Fawcett, to be placed in the Vauxhall Park upon the site of the house in which Mr. Fawcett died. The model has been made by Mr. George Tinworth. Fawcett is seated, and in the background a winged female figure holds a wreath above his head.

The church of St. Paul's, Holgate, York, was reopened on Friday, after having undergone alterations and additions, at a cost of £900.

The Emperor William went to Berlin on Sunday, and unveiled a new fountain designed by the sculptor Begas, and erected in the Schloss Platz, under the windows of the Old Palace.

Mr. John Bolton, builder, of Cockermouth, has been appointed by the Cumberland County Council Technical Instruction Committee lecturer on "Hygiene," and the lectures are becoming popular.

SCHOOLS OF ART.

Metropolitan Art and Science Schools.—A largely-attended meeting of the supporters and teachers of London art and science schools was held on Saturday, at the Charterhouse School, Goswell-road, to consider the altered position of the schools through recent legislation in promotion of polytechnics and technical education, and as the result of a circular letter from the Science and Art Department, South Kensington, intimating that "in view of the continued operation of the Local Taxation (Customs and Excise) Act, 1890, the grant for apparatus and fittings, and the grant in aid of technical instruction will be discontinued, the former after the financial year 1891-92, and the latter at once." Dr. G. Danford Thomas, chairman of the Bayswater School of Art and Science, presided. It was contended that the successful work of the schools established a strong claim to consideration under any new scheme, and it was urged that the schools could not compete with polytechnics if the latter were exclusively equipped with a practically inexhaustible store of appliances, and with almost unlimited funds. Mr. Black moved a resolution asking the London County Council to help the metropolitan science and art schools, as the provincial schools were assisted by county councils elsewhere in the country. Dr. Forman, speaking as a member of the London County Council, said it would be useless to memorialise the present Council, as the Excise fund was already appropriated to March next in relief of the metropolitan rates, and in that month there would be a new Council elected. Sir Philip Cunliffe-Owen said that in the provinces £750,000 was devoted to purposes of technical education, and most of the money was given towards the development and enlargement of schools of art and science. London ought to take the lead in these matters, and not be behind the country towns. The resolution was adopted, but it was decided to deter the consideration and presentation of a memorial to the London County Council. Further, it was resolved to form forthwith a Metropolitan Association of Science and Art Teachers.

The Royal Female School of Art.—The annual exhibition of the prize drawings of students at this school was opened on Friday at 43, Queen-square. Mr. E. J. Poynter, R.A., has awarded the Queen's gold medal to a chalk drawing of a head by Miss Blanche M. Falcon, the National silver medals to a water-colour group by Miss Alice M. Hake, and a sea holly (water-colour) by Miss Rosie C. Whiteside, and the National bronze medals to water-colour drawings by Miss Sarah Horton and Miss Kathleen Winny. Miss Lucy Gee, Miss Fanny Giles, Miss Alice Hake, Miss Emily Weaver, and Miss Rosie Whiteside took the National Queen's prizes. The scholarships were awarded as follows:—The Queen's scholarship of £60 a year, Miss A. M. Langford; the Mercers', of £30, Miss Hariot Dunnell; the Clothworkers', of £30, Miss Emma Cornish; the Atkinson, of £25, to Miss Clara Reynolds; and two scholarships of £50 each, one for first-year and one for second-year pupils, called the Gilchrist, Miss Rosie Whiteside, and Miss Alice Hake.

The Kendal board of guardians decided on Saturday to rebuild, at an estimated cost of £10,000, the workhouse, the existing building having been condemned by the Local Government Board inspector.

Internal decoration has just been completed at Holy Trinity Church, Guildford, under the immediate superintendence of Sir Arthur Blomfield, A.R.A. The improvements include sanctuary steps of Cornish serpentine, brass altar rails, and the decoration in colour of the interior of the apse, the latter work having been executed by Mr. Joyce. Plans have been prepared by Sir A. Blomfield for enlarging the church by 120 sittings.

A chancel screen at West Bromwich Parish Church was dedicated on Sunday by the Bishop of Lichfield. The new screen is made of oak, and is designed in the Late Perpendicular style, to accord with the architecture of the church. It occupies the full width of the chancel arch, being 26ft. 3in. wide and 15ft. high, and is of five bays. In front of the screen, and standing on detached pedestals, are figures representing cherubim and angels. The screen has been designed by Messrs. Wood and Kendrick, of West Bromwich, and has been executed by Mr. Bridgeman, of Lichfield; while the iron gates are the work of Messrs. Hart, Son, Peard, and Co., of Birmingham.

Engineering Notes.

Ipswich.—The celebration of the widening of Bourne Bridge, a brick and stone structure, was celebrated on Thursday in last week by the borough and county authorities. The former width of 13ft. between the parapets has been increased to 27ft., and there is a wide sweep towards the Strand-road. The crown of the road has been lowered by 2ft. The arch, which is a high ellipse of 38ft., has not been widened. The work has been executed from the designs of Mr. E. Buckham, borough surveyor, of Ipswich, and Mr. H. Miller, M.I.C.E., county surveyor for East Suffolk. For the contractor, Mr. A. Jenkins has superintended the works as engineer. Mr. H. W. Buxton, Ipswich, was clerk of the works. The cost was about £1,300.

CHIPS.

A memorial stone has been placed over the grave of the late Dean of St. Paul's in the churchyard of the Somerset village of Whatley. It is of free-stone, coffin-shaped, with a plain cross on the top. On the west side is an inscription.

All Saints' Church, Rosendale-road, West Dulwich, was dedicated on Saturday. It is French Gothic in style, and consists of unfinished nave, wide north and narrow south aisles, morning chapel, and lofty apsidal chancel. It is of red brick and stone dressings. A notable feature is the freestone screen, which imitates in its mullions and shafts, connected by open metal-work, a three-light window. Mr. G. H. Fellowes-Prynne, F.R.I.B.A., is the architect, and the cost thus far has been over £18,000.

At a meeting of the Society of Engineers, held at the town hall, Westminster, on Monday evening, Mr. W. N. Colam, president, in the chair, a paper was read by Mr. J. H. Paul, on "Corrosion in Steam Boilers."

On the Feast of St. Raphael the Archangel, the new Catholic Church at Kelvedon was solemnly consecrated and opened. The church is a little Gothic building in red brick, with stone dressings, consisting of chancel, nave, and aisle, and containing stained-glass windows.

The new church clock at Uttoxeter was started on Saturday last. The order was placed with Messrs. John Smith and Sons, Midland Clock Works, Derby. The clock has two dials, each 7ft. across, which are illuminated at night. It chimes the Westminster quarters, and strikes the hours upon the large tenor bell.

Sir A. K. Rollit, M.P., opened, on Friday, a Conservative club at Batley, which has been erected and furnished at a cost of about £5,000.

The Halifax town council have decided to invite competitive plans for a technical school in Hopwood-lane.

A new court-house is being roofed-in in Weld-road, Birkdale. It adjoins the town-hall, and has cost the Lancashire County Council £4,000.

The mural decorations of Folkestone Parish Church are being rapidly proceeded with, Mr. A. O. Hemming being now engaged on a large painting on the south wall at the western end of the nave, representing the reception of St. Augustine by King Ethelbert on the Isle of Thanet. Above the picture there are canopies containing figures of St. George and St. Patrick. Another scene in the history of the English Church is to be placed on the opposite wall, and canopied figures of St. David and St. Andrew.

The police station at Camberley is approaching completion. It is built on the same lines as those at Farnham and Wokingham—in the Early English style, and of red brick. The upper floor is weather tiled with Broseley tiles, faced with "club" tiles. There are two entrances. The porch to the left leads to the office, to be used as an occasional court. Behind this are three cells, solidly built of concrete. To the right are the sergeants' quarters. The work has been executed by Mr. T. K. Kingerlee, builder, of Oxford and Guildford, Mr. C. H. Howell, the county surveyor of Surrey, being the architect.

At the Gateshead town hall, on Friday, Major-General Henry Darley Crozier, R.E., on behalf of the Local Government Board, held an inquiry into applications of the Gateshead Corporation to borrow £24,550 for improvements in the borough. The first application was to borrow £20,000 for works of paving. The second application was for leave to borrow £4,550 for district police-stations at Sheriff Hill and Teams, and the purchase of a steam fire-engine and appliances for the central police-station at the town hall. There was no opposition to either of the schemes, which were explained by Mr. Bower, the borough surveyor

TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opini our correspondents. All communications shou drawn up as briefly as possible, as there are claimants upon the space allotted to correspondent

It is particularly requested that all drawings an communications respecting illustrations or literary m should be addressed to the EDITOR of the Bui News, 332, Strand, W.C., and not to members o staff by name. Delay is not unfrequently othe caused. All drawings and other communications sent at contributors' risks, and the Editor will undertake to pay for, or be liable for, unsought cont tions.

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Bound volumes should be ordered early (price Tw Shillings each), as only a limited number are d up. A few bound volumes of Vols. XL., XLI., XL XLIX., L., LI., LIII., LIV., LVIII., LIX., and may still be had, price Twelve Shillings; all the o bound volumes are out of print. Most of the back n bers of former volumes are, however, to be had sin Subscribers requiring any back numbers to comp volume just ended should order at once, as many them soon run out of print.

Received.—K. on H. S. B.—E. B. and Son.—T. C. W. and J. R. F. and Co.—J. and Co.—M. G. and C C. M. and Co.—G. and T. E.—T. and R. B.—B. H. Co.—E. C.—W. F. S.—R. T. Co.—G. B.—S. A.—J. J.—A. W.—G. W.—B. Co.—S. Bros.—J. H. B.—E S. S. B. Co.—R. B. and Son.—G. B. and L.—A. C F. W. R. Co.—J. C. and Co.—J. and A. Co.—T. T. A.—S. Co.—C. W. S.—A. G.—C. S. and Co.—J. S B. V. Co.—F. J. Co.—F. B. and Co.—T. C. and Co W. S. and Son.—J. B. J. and Co.—G. N. R. Co W. G.

"BUILDING NEWS" DESIGNING CLUB.

Arthur Harrison.—(The site for the convalescent ho although at the foot of a sloping cliff, may be recko to be so situated that light can be obtained from rear of the building as well as at the sides.)—A. Newman. (Ditto.)—E. S. Wilson. (Yes, a nur room to each ward. A small surgery or doctor's ro might be worked in. The question as to one or t floors is left to competitors.)—Montague G. Hol (Bedrooms for three female and one male servant wo be necessary; such provisions are taken for granted. John G. Combie. (No payments are required on ent ing the club. All we ask of those who join is that th will do their best, and work well. Such a course w be entirely to the advantage of the worker.)

Received.—F. Jerman, Alex. Blomfield, J. T. Cr F. T. W. Ware, F. S. Pearson, Norman H. Atkins.

Intercommunication.

QUESTIONS.

[10657.]—**Timesing and Dotting on.**—Wh is the correct reading of the following dimensions, a what is the proper rule to observe in arriving at t meaning of any such combination?

2 . 2/2/ 3 6 3 . 2/3/ 5 0

Is the former 6 times or 8 times, and the latter 9 times 15 times?—T. J. C.

[10658.]—**Schools.**—Answers to the following w oblige. What is the average floor area per child i schools for 100 children, and the cubic space required i each child?—H. S. P.

[10659.]—**Floors.**—A drawing showing at least thr varieties each, of timber floors and of combined iron a timber floors, is required for passing the intermedia R.I.B.A. exam. Will some gentleman acquainted wi the requirements tell me whether examples of firepro flooring (with concrete, &c.) will be allowed? Unle this is so, it seems to me that not more than three distin

s of floors are used—namely, single, double, and What other separate varieties are there?—C.

0.]—**Joists, Purlins, and Rafters.**—Will e kindly say what determines the width and depth ts, purlins, and rafters for ordinary dwelling ? Is there any formula for working out the same? SUBSCRIBER.

REPLIES.

3.]—**Wainscotting.** — Technically, wainscot o Baltic oak, and is understoood in that way. In ie way dado refers to the panelling, and not to the al.—J. G. GUY.

5.]—**Mills.**—"J. W. C." can get every informa- om Messrs. Robinson and Co., Rochdale.—J. G.

6.]—**Model Farming.**—In reply to the inquiry A Bucolic Reader" we beg to say that we have l sets of farm-buildings, costing from £500 to , in this neighbourhood, and at Kemsing, Kent, and , Cambs.—KELSEY AND HEAD, Bonehurst, Horley,

Legal.

ARCHITECT'S AUTHORITY.—I.

ART from the powers given him by the con- an architect employed by a building owner lo various things within the scope of his al authority. But this agency is subject to s limitations. For instance, where his asks him to get out plans, and to get in rs and estimates, he yet has not legal power ter into a contract with any particular er, although the price offered may be within fixed by the owner. Indeed, a proper formal act is a legal document, and being the one which the subsequent rights of all the es may depend, it requires to be carefully n, and is, properly speaking, the work of a er, rather than of an architect. Of course, contracts, especially where simple, are n up by architects, and often upon printed s; but without the owner's express instruc- there is no implied authority in an archi- as a general agent to bind his client in this The price to be paid is of much importance, limit should be, as it generally is, fixed between the parties. Where this is left , and the architect is authorised to order to be done, the builder doing it can recover air charges from the building owner, even gh his instructions have been exceeded. ie duty, as well as the power, to superintend uildings erected under his plans and draw- is thrown upon the architect by virtue of ffice, independently of any contract in which would be expressly provided for. Although rchitect's authority over the builder and the rs is pretty absolute in its character, he still no implied power to dismiss the contractor has been engaged upon the building. But, ourse, such a power can be, and sometimes is, rted in the building contract; while there is rally a distinct clause authorising the archi- to dismiss any workman of whom he dis- oves. As to sub-contracts, these must all ased upon the main or original contract, and rchitect has no implied power to order sub- ractors to do work not included in the general ract; nor can he render his employer liable ntering into subsidising contracts with them, ther it be for the original work contemplated or alterations, unless, of course, he is ex- sly employed to do so. In fact, legal diffi- ies have generally arisen by reason of itects exceeding their implied authority as nts of clients, and doing things which these er have afterwards refused to ratify.

FRED WETHERFIELD, Solicitor.
, Gresham Buildings, Guidhall, E.C.

OTE.—All questions for reply in this column st be headed "BUILDING NEWS," and must h my offices, as above, by *Tuesday* morning nsure answer same week.

OVINCIAL.—AGREEMENT.—(1) This agreement would, ink, under its special terms, be taken in law as a sub- sion to the arbitration of the surveyor mentioned, but ndertake the work a valuer's license would be uired. (2) The certificate (which would, in fact, be ward) would have to be stamped as such, especially if e was likely to be any disagreement. (3) Either the ler itself or the acceptance must be stamped before it be given in evidence, as they constitute together the ract between the parties. Of course, by paying the alty the question of stamping can be got over, and need not be paid until it is actually called upon to be duced, or is tendered in evidence.

. T. W.—CLERK OF WORKS.—This is an ordinary stion between employer and employed. You were aged as clerk of works, and the building was stopped in progress to settle a question of ancient lights—a very usual thing While question of lights is being discussed you are kept on taking levels, and so on, and now the employers refuse to pay wages for the time the actual building was stopped. The architect thinks they are liable, and so do I, that is, if no receipt or document has been signed in satisfaction.

W. R.—AWARD.—There is no special form for such an award. Any clear statement of decision in reference to the matter of the reference would be sufficient. The stamp upon so small an amount would be threepence.

M. M.—NOTICE TO QUIT.—This notice must generally be given so as to include the full time necessary. But a customary half-year's notice under a yearly tenancy means a notice expiring on one of the usual quarter days. Then a six-months notice to quit at midsummer day, served on the preceding Christmas day is sufficient. Certainly 12 o'clock at night is the time when one day ends and another begins.

R. G. P.—LANDLORD'S REPAIRS.—Even if a landlord is bound to repair, a tenant cannot do so without first calling upon his landlord to carry out his covenant. Nor when there has been a breach by the landlord can the tenant deduct the damages from the rent, as against a distress, although, of course, he could set them up as a counter-claim if sued for rent by action. As to wrongful inclosures of roadside waste, the best form of procedure would depend on the whole facts of the case.

J. J.—DAMAGE TO OLD PROPERTY BY NEW BUILDINGS.—You would, I think, be liable for any damage done to foundations of adjoining cottage under the special circumstances. It is not quite the usual case of "right to support." As a general rule you would only be liable if the excavations were done negligently and without giving the adjoining owner any warning to afford him an opportunity of protecting his property. The best course here would be to make some arrangement with the owners of the cottages first, so as to escape a possible liability.

H. B. L.—ARCHITECT'S CERTIFICATE.—The contractor cannot impeach the architect's certificate as to anything within its scope according to the contract, unless he can prove fraud or otherwise. The question of arbitration is a different matter, and applies only to disputes beyond the range of the certificate. Of course, the contractor can bring an action against the owner if he likes, but, upon what is stated, he would lose it certainly.

LEGAL INTELLIGENCE.

IN RE R. JOSE.—A meeting of the creditors of Richard Jose, builder, of 9, Trehaverne-place, Truro, was held at Truro on the 27th ult. Debtor's statement of affairs showed liabilities £2,004 and assets £207. After deducting preferential creditors a deficiency was left of £1,800. The debtor attributes his failure to want of capital, losses by fire, losses on building contracts, and losses on the sale of dwelling-houses erected on speculation. Debtor commenced business in 1882, with a capital of £60, of which £30 was borrowed. The bankrupt has been building houses on speculation, having from time to time obtained loans to enable him to carry on his business. The Official Receiver reported that the debtor had mortgaged the buildings as they have been erected, whilst the merchants who have supplied the materials remain unpaid.

ASSAULT BY A BUILDER ON A SURVEYOR.—Mr. Wm. Stark, builder, Manor Park, was summoned at the Stratford Police court on Saturday, for assaulting William Henry Savage, the surveyor to the East Ham Local Board, at Little Ilford, on Oct. 26.—The complainant said the East Ham Local Board had recently issued some notices for the making-up of the First and Second Avenues at Little Ilford, where the defendant was conducting building operations. On Monday witness went to his office on business, and he and the defendant had a conversation about the width of the footpath and the drains. Defendant struck him violently on the head several times. James Newman, complainant's foreman, corroborated. The magistrates sentenced defendant to fourteen days with hard labour. Notice of appeal was given, and the sureties were fixed—defendant in £50, and two sureties of £25 each.

IN RE J. AND C. PAINE.—John W. Paine and Charles F. Paine, builders, in business at Stamford-hill, under the style of Paine Brothers, against whom a receiving order was made on the 2nd ult., have lodged a proposal for a scheme of settlement of their affairs. They suggest that their property shall vest in a trustee, by whom their business shall be carried on so far as to complete the buildings now in course of erection by them, and he shall, as soon as is practicable, realise the property, Mr. Charles Cleverly Paine, an unsecured creditor on the estate for a large amount, agreeing to withdraw his proof until the other creditors have received a dividend of 7s. 6d. in the pound upon their unsecured debts. The liabilities amount to £5,519, and the assets are estimated at £5,188, after payment of preferential debts; but the Official Receiver states that the actual realisable value is very uncertain. He, however, reports in favour of the proposed scheme.

IN RE JOSEPH SMITH, OF BRADFORD.—At the Bradford Bankruptcy Court, last week (before Mr. Registrar Lee), Mr. Joseph Smith, lately of the firm of Messrs. Smith, Gotthardt, and Co., land surveyors, Cheapside, Bradford, appeared for public examination. The report of the Official Receiver (Mr. J. A. Binns) stated that the bankrupt began business in 1847, and in his own business had always been successful. In 1873, he and some other persons formed themselves into a company to acquire land at Ilkley for resale as building sites. They erected the Middleton Hotel, but could not let it, and had to work it themselves. Land was also purchased at Burley. Mr. Smith had also had ventures in Bradford, and the greater portion of them remained in his hands at present under mortgages. Of Mr. Smith's joint speculators, some had died, and others became insolvent, and he had to assume their liabilities. His last partner, Mr. S. E. Maskell, left the country in July last, and Mr. Smith had to file his petition in bankruptcy. Mr. Smith, replying to questions, said, according to the original estimate, the Middleton hotel was to cost £12,510, but as a matter of fact it cost £35,916. The working of the hotel had been a loss to the company throughout the whole of its existence. He had also lost money in connection with the Cottage Club. That had been a very unfortunate business. Mr. George Smith was the architect, and people finding that the cost of houses was about double the original estimate, a number were thrown on the hands of the members of the club. He estimated his loss in connection with the club at £4,000. Many thousand pounds had also been lost in connection with the Villas Club at Addingham. Five were built. Another unfortunate matter which at one time promised well was the Silverwell waterworks, made at a cost of £1,516, of which, owing to the competition of the local authority, the rent had gone down to £40. In reference to the affairs of members of his family, he had been unfortunate. In the firm of Charles Smith and Co. he had lost £2,300; and he had also sunk money in the firm of Smith and Beanland. From the resources of his private business (which yielded about £2,000 a year) he had paid £4,000 to the Victoria Land Company. The examination was closed.

THE FALKIRK WATER ARBITRATION.—Counsel was heard before Mr. Gale, C.E., Glasgow, on Monday, at Edinburgh, in reference to the question at issue between the Falkirk and Larbert Water Trust and Messrs. D. Y. Stewart and Co., contractors. A difference has arisen between the parties as to whether the contractors have duly completed the works in terms of the contract, and the matter for discussion was whether there should be any inquiry before an arbiter; or whether, in consequence of a certificate granted by the engineer (Mr. Copeland, Glasgow), the Water Trust was not excluded from questioning the character of the work. The Solicitor-General and Mr. John Wilson appeared for the trustees; while Mr. Henry Aitken appeared for the contractors. The Solicitor-General having moved for a proof, Mr. Aitken submitted that the matter was not ripe for proof, the claim of the trustees, he contended, not being completely stated. He asked the specifically stated objections they had to the works. The Solicitor-General having amended the principal article of claim, time was granted for the lodging of answers.

CHIPS.

The new Infectious Diseases Hospital, Burton-on-Trent, is being warmed and ventilated by means of Shorland's double-fronted patent Manchester stoves with descending smoke flues, the same being supplied by Mr. E. H. Shorland, of Manchester.

"The Life and Letters of Sir James A. Picton," the well-known Liverpool architect, by his son, J. Allanson Picton, M.A., M.P., is about to be published.

A new organ, built at a cost of £600 by Messrs. Hele and Co., of Plymouth and Kensington, was opened on Thursday in last week in Emmanuel Church, Paddington.

On Saturday Mr. E. B. Hoare, M.P., laid the memorial-stone of a new aisle and chapel which is about to be added to the church of St. Mary the Virgin, Primrose-hill. The church was built 21 years ago from the designs of Mr. M. P. Manning. It is in the Early English style, and now seats 500; when the new aisle is added there will be room for 750 seats. The cost of the addition will be £2,000. A sculpture of the Annunciation has just been executed over the north door of the church by Mr. Samuel Fry.

The foundation stone was laid last week of a new R.C. church of the Sacred Heart in Burley-road, Leeds. The church and school building is two stories in height, the lower one being for schools. The upper story is the church, and is approached at the street level. It consists of a nave 50ft. by 25ft., sanctuary with apex 18ft. wide, and sacristy 22ft. by 15ft. The church is lighted throughout with traceried windows. It is to be erected of red brick with stone dressings. The roofs are boarded and panelled, octagonal in shape with curved principals. The roofs are covered externally with green Welsh slates. Messrs. Kelly and Birchall, of Leeds, are the architects, and Mr. Jones is the clerk of works.

WATER SUPPLY AND SANITARY MATTERS.

HEMSWORTH UNION WATER SUPPLY.—The rural sanitary authority of the Hemsworth Union are taking steps to procure a provisional order for acquiring lands and easements in connection with an extensive system of water supply. Nearly a year ago the authority instructed Mr. M. Paterson, M.Inst.C.E., Bradford, to report upon a scheme of supply in and for the township of Hemsworth only. A source absolutely trustworthy could not be found within the prescribed limits, and Mr. Paterson then recommended the consideration of the question of a complete scheme for the whole union. Instructions were given, and reports obtained, on schemes of supply from the Pontefract Corporation and the Penistone Local Board works respectively, the water in both cases being pumped from subterranean sources, and both somewhat hard, being from 11 to 12 degrees of hardness. After due deliberation, the authority have decided to adopt a scheme suggested by Mr. Paterson, the source selected by him being the joint water boards of Dewsbury and Heckmondwike. The water is of exceptionally fine, pure, and soft character from the moorlands lying on the Derbyshire boundary of the West Riding, above Penistone, and quite free from liability to lead poisoning. It is proposed to tap the board's conduit a few miles from the source, and the supply will be by gravitation, the works consisting of a line of pipes about fifteen miles long, a service reservoir at Ringstone Hill, 402ft. above sea level, and about 32 miles of distributing mains. The estimated cost is £28,000. The Hemsworth Union comprises 24 townships, of which eleven are included in the above scheme. This area is rapidly developing as a coalfield, containing the most valuable seams in Yorkshire, and its population has more than doubled since 1871, and, in consequence, existing water supplies, which are merely troughs and wells fed by surface springs, have become not only inadequate but in many cases dangerously polluted. The water is to be purchased in bulk, the maximum volume agreed upon being 400,000gals. daily, and the whole scheme is designed to meet the wants of a population of 25,000.

RUGELEY WATER SUPPLY.—At the meeting of the local board on Tuesday the question of the water supply of the town led to a long and very animated debate. The committee appointed to consider the question recommended that Mr. Radford be employed to carry out certain preliminary work, and prepare plans to submit to the Local Government Board. The chairman said that the recommendation of the committee was not unanimous, and he explained the reasons why Messrs. Fairley and Perry, who had been awarded the prize for the best scheme, had not been chosen to carry out the work, the principal reason being that Mr. Radford had had large experience, while Messrs. Fairley and Perry had never carried out a scheme of this kind. He proposed that the report be adopted. Mr. Lees moved an amendment that Messrs. Fairley and Perry be employed to carry out the work. Mr. Buttery said Messrs. Fairley and Perry had been anything but handsomely treated in respect to this matter, the board having some time ago accepted their scheme on the recommendation of the eminent geologist, Prof. Boyd Dawkins. Mr. Hebbs characterised the treatment of Messrs. Fairley and Perry as a gratuitous insult. On a vote being taken, Mr. Radford was appointed by ten votes to five.

STATUES, MEMORIALS, &c.

OXFORD CATHEDRAL.—A medallion with the head of the late Bishop Mackarness, of Oxford, has been placed in Christ Church Cathedral on the south wall of the south aisle, adjacent to the memorial of the late Prince Leopold. The medallion, which is of silver bronze, was designed by Mr. Leonard Stokes, the work being executed by Mr. Frampton. The late bishop's head, looking in profile towards the Communion-table, occupies the upper portion of the bronze, and in the space in front of the face is indicated the head of a crosier. Below is an inscription in raised lettering. The whole is surrounded by a square border of cherubs' heads in low undefined relief, the top line of which is broken by a shield bearing the arms of the see, marshalled with those of the family. This is surmounted by a bishop's mitre.

STAINED GLASS.

SANDRINGHAM CHURCH.—Among the numerous presents H.R.H. the Prince will receive on Monday next, are three stained-glass windows, one given by Her Majesty the Queen, one by Lords Gosford, Colville, Suffield, Sir D. M. Probyn, Sir C. C. Teesdale, Sir F. Knollys, Captain Stephenson, Gen. A. E. A. Ellis, Canon Dalton, Col. Stanley Clarke, Captain G. Holford, Rev. F. A. J. Hervey, and Mr. M. Holtzmann; and one by Mr. F. W. Gibbs, Q.C. These windows have been designed and executed by Heaton, Butler, and Bayne, under the supervision of Sir A. Blomfield and Sons.

Our Office Table.

AMONG the minor exhibitions now open to the public, we may draw attention to a series of water-colour drawings illustrative of the streets and buildings of London, from the pencil of Mr. C. J. Lander, who, with a lively sense of colour, has managed to impart a picturesque character to what, as ordinarily seen, wears, at any rate, a more sombre dress, and melts into the unobserved and commonplace amidst the medley of monotony in our modern streets. Ludgate-hill has often been well represented, and here Mr. Lander treats this unquestionably picturesque thoroughfare with breadth and with a sense for detail, even if we descend to the young lady in grey who is mounting on to the top of an omnibus under the railway bridge. The west front of Westminster Abbey has the towers too tall, and that of St. Margaret's is also too elongated. Kew Bridge is well drawn, and the Royal Exchange, as a contrast to it, may also be named. In the same Burlington gallery in Old Bond-street are also a series of "Facts and Fancies," by Mr. Reginald Jones, whose water-colours are very bold and broad in style, sometimes bright in colouring, but more successful in the quiet tones of greys and yellows. These landscapes will alone repay a visit.

A COURSE of twelve lectures on "Architecture as Demonstrating the Manners and Customs of Nations" is about to be given at Hampton Court Palace by Mr. T. Locke Worthington, A.R.I.B.A., who is one of the professional lecturers of the London Society for the Extension of University Teaching. The series will be fully illustrated, and will include a review of both the true and imitative styles. The first of the course will be delivered this (Friday) afternoon at 2.30.

THE London County Council decided on Tuesday to invite applications for the posts of chief officer of the Fire Brigade, at a salary of £800 a-year with free quarters, and for a superintendent of parks and open spaces, at a salary of £700 a-year. It was also decided to accept the tender of Messrs. Pearson and Son for the construction of a 16ft. wide tunnel at Blackwall for £871,000. Sir T. Farrer announced that he had received a communication from Lord Salisbury, stating that the Government had the subject of the water supply of the Metropolis under their serious consideration.

AT Tuesday's meeting of the City Commission of Sewers, Colonel Haywood, C.E., the engineer, reported that the artesian well at the Artisans' Dwellings in the Minories had been bored to an additional depth of 100ft., making 450ft. in all, the average daily yield being 50,000 gallons. He recommended that the boring should be continued for another 100ft. deep, at a cost of 30s. per foot. After a discussion the recommendation was carried, and it was further arranged that Dr. Sedgwick Saunders, the medical officer, should analyse the water and make a report as to the result at the next meeting. The Court, under the provisions of the Sky Signs Act, which came into operation on June 3 last, sanctioned certain existing signs, the security of which had been certified by the district surveyor, and issued licenses in respect of them. Other signs were either condemned or their consideration postponed until the surveyor was satisfied as to their safety.

ALTHOUGH the large quantity of timber still growing on Canadian soil tends to check interest in forest preservation and extension, the Federal Government has recognised the need of such efforts, and has for some years been testing many varieties of tree life at its experimental farms. At the Central Farm, near Ottawa, the seeds of Rocky Mountain and European conifers were liberally sown. This year 175,000 seedlings were transplanted from these beds, to be distributed later on to the branch farms and private experimenters, who will send in careful returns of progress. This year, too, the Government has distributed 100,000 forest-tree seedlings among 1,000 applicants in the North-West, with instructions for planting and future treatment. Twenty-five "gardens" along the main line of the Canadian Pacific Railway have also been supplied from the experimental farms. The urgent need of forestry even in the old provinces, not long ago covered with trees, is illustrated by Mr. J. C. Chapais, an authority on such subjects. "I know whole regions," he says, "which were cleared by settlers, who had desert the land soon after because it was w nothing. Such districts would have bee many inexhaustible wood-reserves for fu generations, who, for an almost endless pe of time, would find on them all the wood want. To-day these same districts are q useless in every respect."

MEETINGS FOR THE ENSUING WE

MONDAY.—Surveyors' Institution. Address by the sident, R. C. Driver. 8 p.m.

TUESDAY.—Society of Architects. Members' dinn the Holborn Restaurant. 7.30 p.m.
Institution of Civil Engineers. dress by the President, G. Berkley. 8
Sheffield Society of Architects Surveyors. "Architectural Educati Sheffield."
Royal Society of Antiquarians of land. Meeting in Dublin.

WEDNESDAY.—Society of Architects. Opening ad by the President, W. H. Seth Smith. James's Hall, Piccadilly. 3 p.m.
versazione at Princes's Hall. 9 p.m.

FRIDAY.—Architectural Association. "Frame Hous by C. H. Brodie. 7.30 p.m.

The Architectural Association, 9, Con street, W., and 56, Great Marlborough-street, W.

The Architectural Association Courses of Lectures Classes and Studio Instruction are now being carrie The Courses are both elementary and advanced, an designed to provide a sound professional architec education, supplementary to that to be obtained b prevailing system of pupilage. The Courses also as a means of preparation for the Intermediate Final Examinations of the Royal Institute of Br Architects. The Course, which is divided into years, is progressive and consecutive, and the instru is given by Lecturers and Instructors of known abili

FIRST YEAR.

LECTURES AND CLASSES.—The orders of Greek and R Architecture, Building Materials, Geometry, Physics, Perspe Mensuration, Chemistry, Geology.

THE STUDIO.—Drawings from ancient examples, Freehand ing, Drawing examples of Construction, Plane Geometr Perspective, Sketching and Measuring.

SECOND YEAR.

LECTURES AND CLASSES.—English Architecture, Prin of Construction, Strengths of Materials, Land Surveying, Che of Building Materials, Elementary Ornament and Colour D tion.

THE STUDIO.—Designs based upon ancient examples, Free Drawing, Drawings of Elementary Construction, Solid Geo Sketching and Measuring.

THIRD YEAR.

LECTURES AND CLASSES.—The History of Archite Materials, Stresses and Strains, Specifications and Quantity S ing, Ornament and Colour Decoration, Sanitary Science, Eleme Natural Philosophy.

THE STUDIO.—Design of modern Buildings, Freehand Dr from Casts, Perspective and Sciography, Constructive Ma Modelling, Elementary Water-Colour Drawing.

FOURTH YEAR.

LECTURES AND CLASSES.—The History of Archite Materials, Sanitary Science, Measurement and Valuation of ing Materials, Professional Practice, The Arts Allied to tecture.

THE STUDIO.—Design of Modern Buildings, Freehand Dr from Casts, Graphic Statics and Perspective, Modelling, Colour Drawing.

A pamphlet containing full particulars of the Curric and Fees may be obtained free on application to Hon. Secretaries, at 56, Great Marlborough-st London, W.

ERNEST S. GALE
F. T. W. GOLDSMITH } Hon. Se

Architectural Association, 9, Cond street, W.—The Second Ordinary General Meeting be held at 7.30 p.m. on Nov. 13th, at 9, Conduit-street, when a paper will be read by C. H. Brodie, A.R.I.B on the "Planning and Construction of American F or Timber Houses."

ERNEST S. GALE
F. T. W. GOLDSMITH } Hon. Sec

CHIPS.

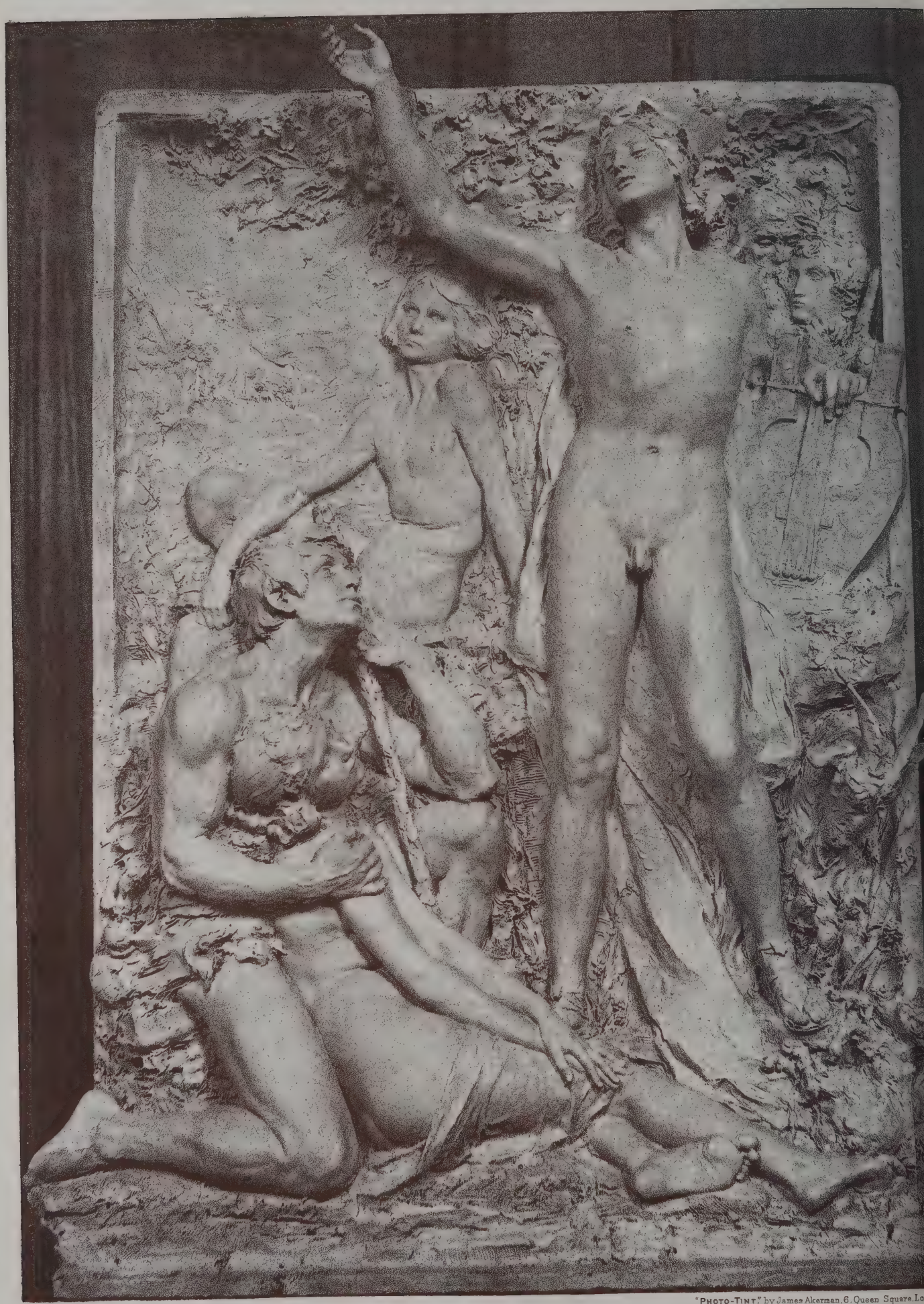
A reredos of oak, executed by Messrs. Hems Sons, has been placed in Ashbury Church memorial to the late Archdeacon Woollcombe.

The chancel of the Manchester Cathedral, w has been closed since May last, was reopened Friday. The Dean and Canons have erected a roof to the choir, and have completely rest what is known as Warden John Huntingt beautiful ceiling, a piece of work which, tho 450 years old, is still in a good state of preserva

New higher grade schools in Whitehall-r Gateshead, were opened last week. Mr. W. Dunn, of Newcastle, was the architect, and T. H. Hutchinson, of Gateshead, the contrac The cost was £11,000.

The Leeds Corporation have purchased, for purpose of street improvements, for the sum £30,000, the Quebec Buildings, opposite the Midl Railway Station. The Midland Company will £3,000 of the purchase money, as the approache the station will be greatly improved. The nego tions have been pending for some years, £60 being the price originally asked.

The Notting-hill branch of the Kensington pu library was opened on Friday. It has been buil red brick and stone from plans by Mr. T. Phi Figgis and Mr. H. Wilson. The contractor Mr. John Greenwood. Messrs. Homan and Rod executed the fireproof flooring, and the libr fittings were executed by Mr. J. F. Hayden.



"PHOTO-TINT," by James Akerman, 6, Queen Square, Lo

PREMIER · GRAND · PRIX · DE · ROME · 1891 · AWARDED · TO · FRANÇOIS · SICARD ·

"APOLLO · PLAYING · TO · THE · SHEPHERDS"

PROFESSOR · WILLIAMSON'S · HOUSE AT HASLEMERE · FREDK W·WALLER·ARCHT



Photo-Lithographed & Printed by James Akerman, 6, Queen Square, W.C



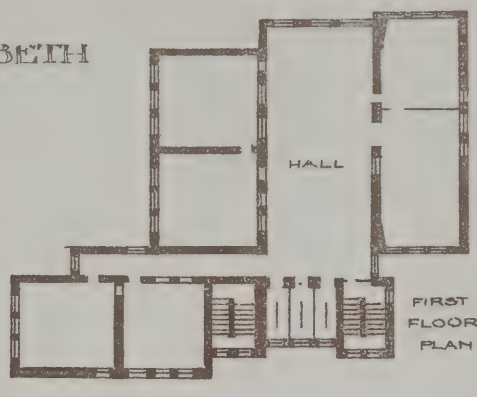
"PHOTO-TINT" by James Akerman, 6, Queen Square, London, W.C.

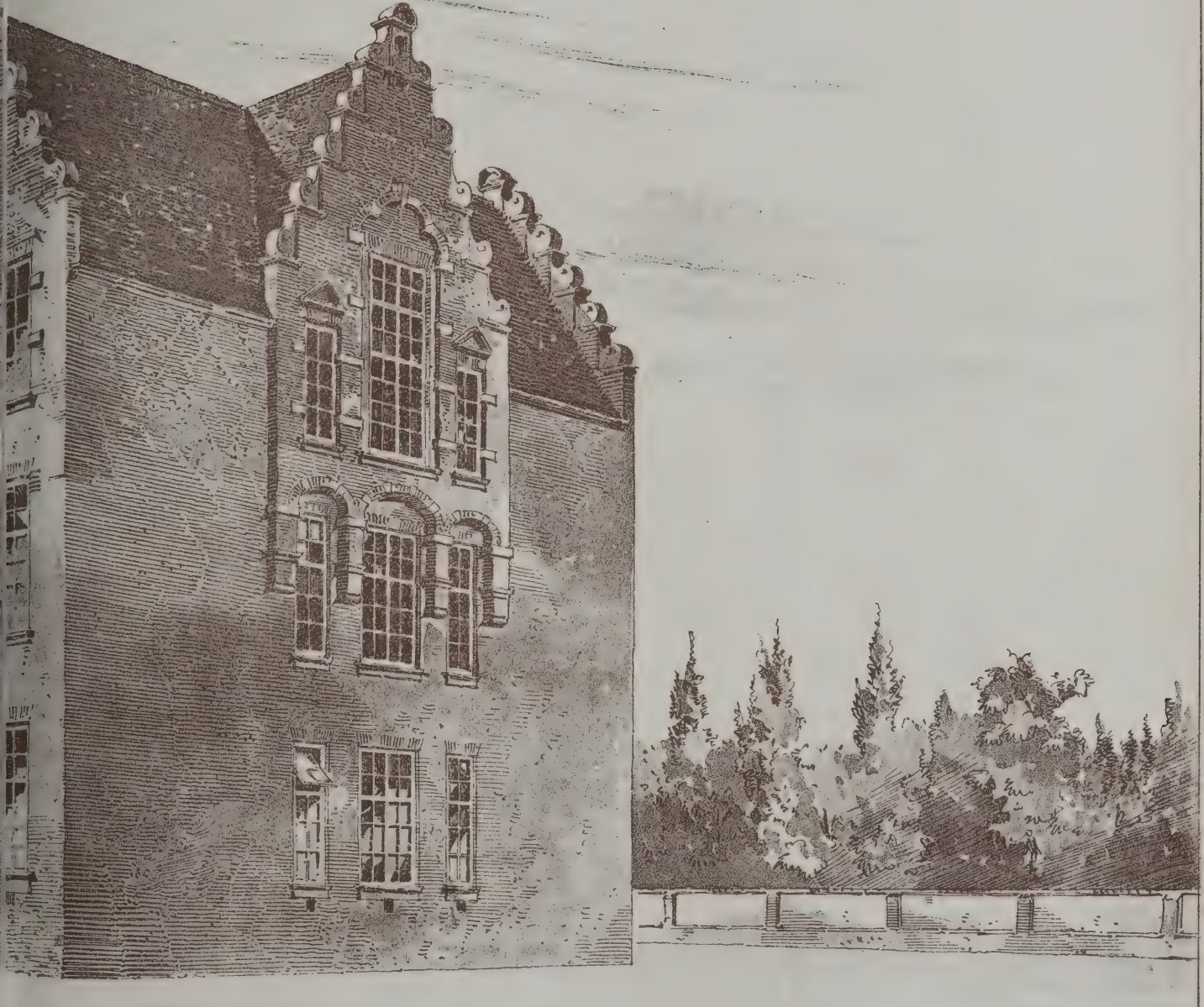


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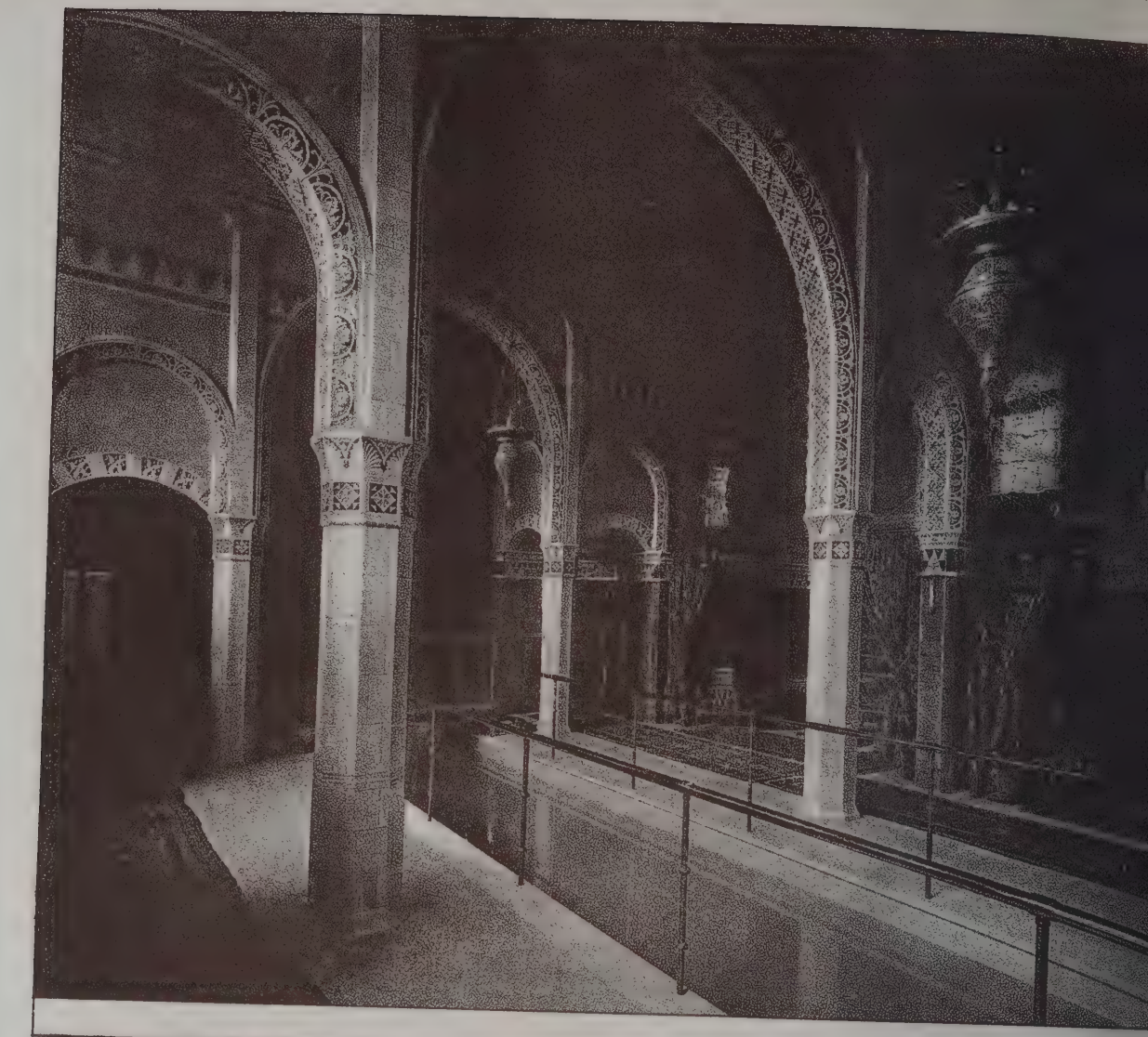
PLOUGH ROAD SCHOOLS LAMBETH

THOS J BAILEY Architect:





"PHOTO-TINT" by James Akerman, 6, Queen Square, London, W.C.





FROM · PHOTOS · BY · MESSRS W. & A. H. FRY · BRIGHTON ·

THE · TURKISH · BATH · DRAWING · ROOM · AT





"PHOTO-TINT," by James Akerman, 6, Queen Square, London, W.C.

THE BUILDING NEWS
AND ENGINEERING JOURNAL.
VOL. LXI.—No. 1923.

FRIDAY, NOVEMBER 13, 1891.

THE EMPLOYMENT OF BUILDERS AS ARCHITECTS.

THAT domestic architecture is largely being relegated to builders is one of the notes of lament we every now and again hear from prominent members of the profession. The late Sir Gilbert Scott, in one of his later Institute addresses, gave expression to his abhorrence of the growth of "mushroom" dwellings which were being erected in utter defiance of architectural taste; the late Mr. Street also regretted the fact. This time the President of the same body, in opening the new session, again drew attention to the "thousands of houses erected yearly in the Metropolis, the vast majority of which are not designed by architects, but by clerks and employés of speculating builders." That the representative spokesmen of a professional body should thus refer to this discouraging fact is not surprising, seeing that houses constitute by far the larger proportion of the average architect's work. The most galling thing about it is this, that to the profession are attributed not only the destruction and spoliation of many of our most beautiful estates, by disfigurements of a structural kind, but the bad construction and insanitary condition of dwellings in the suburbs. This attribution of the incompetence and ignorance of builders' employés to architects is, of course, a great injustice to the profession, and must materially prejudice it in the eyes of the public, who do not care to inquire whether an architect or a builder's draughtsman designed such and such a house. Well may the wrathful indignation of the President be aroused at this addition of injury to insult. The profession have enough to bear in the performance of their duties without being taken to task for the deficiencies and want of knowledge of pretenders.

But we may be allowed to ask whether there are not some explanations of this apparent want of appreciation of the architect's work, and why those who tenant or take leases of houses are content with the buildings they find erected. The truth is that, owing to the system of leasehold tenure, the speculative builder is first in the field; he acquires the estate, he builds the houses under the very cursory examination of the leaseholder's surveyor, and, if he can help it, he tries to keep out of the estate the architect, for whom he has a great dislike, for reasons well known to himself. The architect, in fact, has very little chance of obtaining a foothold on an estate of this kind. Many of our large suburban estates have been covered with houses built without the aid of an architect, from plans, in fact, supplied by the builder. Sometimes, it is true, an architect prepares the designs for the builder, but he has no further interest in the matter, and has nothing to do with details or supervision, and is therefore irresponsible for results. The exceptions to this state of things constitute the rule. Those who have higher view of the possibilities of an estate, and believe that the erection of artistic houses is desirable, even on commercial grounds, let the plots on more favourable terms, and sometimes insert a clause in the building agreement that the houses must be designed by architects. A landowner who really desires to improve his estate makes a stipulation that the houses must be built to his architect's satisfaction, or that each lessee should employ his own architect. But the ordinary plan of letting the land to the builder on building leases, reserving a ground rent and allowing the builder to sublet, is subversive of good construction, and the effect is to keep the architect out of the estate. Can we wonder that so huge a proportion of houses are erected from builders' designs? We should be sorry to see architects enter into building transactions with owners of land, or become speculators, and we can hardly think the alternative would be, in many cases, better than the present state of things. We know a few estates where an architect, or firm, has made an agreement for building leases; but the result of the arrangement, from an architectural point of view, has not been satisfactory. The "financial" gets the better of the artistic, and there is too much replication, or, contrariwise, affectation of variety of detail, to be agreeable.

How the architect can be legitimately employed to take his place in the erection of buildings on estates without becoming a professional speculator is the question. Owners of large estates are to blame for this wholesale sacrifice of land to the mere maker of "improved" rents. But they, too, are led by existing requirements. They find that those who want houses or who have money to invest are more numerous than those who wish to build according to their own tastes; they find also that the large speculator who agrees to cover the land is a more profitable customer than individuals who bring their own architects. The larger proportion of people take leases, and are content to occupy the builder's house till they discover its inherent defects. If those who grant new leases followed the example of the Duke of Westminster in making it a stipulation in their agreements that architects must be employed, some improvement might be effected.

Another reason for the non-employment of the professional man is the popular idea that an architect is an expensive luxury that can be avoided. To some extent the idea is confirmed by excessive estimates, extras, and expenses; but the impression is based on wrong data. People who think thus do not appear to consider the fact that cheapness in building is invariably the result of inferior workmanship, and that the so-called extra expense is, in the long run, the wisest policy, and has added to the quality and excellence of the building. But it is a difficult thing to shake a popular prejudice, and so it is the builder's design is often accepted before that of the architect. The natural craving for novelty, as the President of the Institute mentioned, is, no doubt, one of the weak points of modern architecture; fitness and beauty are often sacrificed to it. Architects, no doubt, pander to novelty; there is a too frequent craving for something new and striking, which has often been detrimental to the art they profess. The builder's plan is, at least, practical; he manages to cater for the popular taste in house building, tesselated tiling, fashionable grates, mantelpieces, and furniture. The requirements of the culinary department, of bath-room, lavatory, and other fittings are provided of a quality which seems to challenge any doubt as to their efficiency. The speculative builder has learned to know what the average tenant looks for, and he accordingly provides all that is essential to the convenience and tastes of the inmates without troubling himself about their quality. Again, he knows the uncertainty of being too inventive or experimental; therefore he adheres to a type of plan and accommodation that has been found to give satisfaction and to be perfectly safe, even although the aspects of the rooms are ignored. In these points, at least, the builder's design competes favourably with the architect's, whose plan is a little irregular and wanting in compactness. The practical builder's method may even teach the architect something. The complaint of the profession may even provoke some retorts of a kind that will not be relished; one of these will be the fees of the architect, another his disregard of matters upon which the comfort of every house depends. Clerks to builders can undertake to make a set of designs to suit the client, the cost of which will be included in the estimate. The profession, of course, cannot compete with services of this kind, but they may retrieve their position in other ways by proving that their training and qualifications are really of value to the public who seek their services in practical no less than in artistic matters. The question, Why are architects so little employed in domestic buildings? is worthy of deeper consideration to the profession than we have ventured to suggest, and much of the indifference is attributable to the utilitarianism of the age.

CONSOLIDATION OF THE BUILDING ACTS.

THE introduction of a consolidated and amended Building Act for the Metropolis will be of vast importance to the people and architecture of London. Between a rigid enforcement of rule and a number of enactments that are constantly evaded, the necessary conditions of sanitary construction and architectural design are lost sight of. Absolute ugliness and monstrosities are tolerated on one hand, and sanitary requirements and good construction successfully ignored by the unscrupulous builder on the other. Imperfect machinery has rendered these failures possible; but an Act which applies indiscriminately to all buildings; which does not take into consideration the requirements of architectural improvements in our streets; that allows of no relaxation of certain rules under exceptional conditions, must necessarily fail to secure the objects to be kept in view. At present buildings of very different kinds come within the jurisdiction of the law. Architects naturally complain of the restrictions imposed upon them in various ways in towns. The observance of angles for light to "ancient windows" is one of increasing perplexity in rebuilding in old, or re-modelled, thoroughfares, and, though the Building Act does not take into account the circumstances of light and air, some provisions appear to be necessary in respect of it. It might, for example, prescribe a certain angle of building for erections adjoining to, or in proximity with, old windows on certain levels, so that subsequent litigation and costs might be saved. An architect finds that he has to comply with different rules under various Acts; some of these are rigidly enforced, others are loosely interpreted. Existing laws do not take account of degrees of obligation. That is, while one class of buildings for domestic and trade purposes come off lightly, those intended for public uses are heavily handicapped.

It would be undesirable to restrict by statute the design of buildings in our streets, and the difficulty is certainly to define some limits to the operation of a Building Act that will afford every protection to the public interests and to health without restricting or fettering architectural invention. These limits are somewhat hard to set. For example, there are elements of safety and habitability which come in a very direct manner within the scope of a Building Act, which yet would appear to encroach on the architect's domain. We will instance two—projection beyond line of frontage, and height. Each of these very closely come within the operation of a sanitary law. The public have suffered, and are now suffering from the encroachment of new buildings beyond the "general building line,"

and it is certainly within the scope of an Act to regulate building frontages, for every man, woman, and child has an interest in the preservation of a certain width of roadway or street. But the rule no less interferes with design. A general frontage line practically curtails the architect's liberty, because it compels him to make a flat front, or to reduce to a minimum every architectural projection, so that the design loses a great deal of effect. To produce a pleasing play of light and shadow, or to emphasise any feature, entails a setting-back of some portion of the façade, and, consequently, a loss of space. We might mention several buildings in our City and West-end streets which painfully illustrate the flatness occasioned by the operation of section 75. Hence the practical effect of this very salutary law is to deprive the architect of one source of effect in the design of façades. To make any distinction between private and commercial buildings and public edifices would, perhaps, hardly meet with general approval; but we cannot see why, in interpreting this provision of the Act, public buildings should not be a little favoured. We know there are certain exempted buildings under the Metropolitan Building Act. The discretionary powers given to the County Council and vestries may, we think, in this direction be exercised more fully without making any invidious distinction. A vestry hall, a free library, or museum, a technical school or a church, are buildings of this exceptional class, for either of which a freer interpretation of the section to which we refer might be allowed. These buildings only constitute a very small proportion of the private and commercial buildings of a town or district, and by exempting them from the operation of a by-law of this sort, the architectural design of important edifices would not be interfered with. The other limit, as to height, is another matter about which the building authorities of towns may exercise a little discretion. It does not seem fair that a block of dwellings in flats should be carried to a great height in a street where houses or shops of two or three stories exist. The disproportion between a block of, say, eight or ten stories and a row of small houses, completely destroys all sense of architectural propriety or dignity, and here it seems at least to be a reasonable thing for a local authority to exercise a little control by preventing lofty buildings being erected in proximity to those of only ordinary height. Yet the building by-laws do not exercise any such discretion. We lately referred to a few recent structures built along the Victoria Embankment, which seemed by their great height to overpower the older buildings in their neighbourhood; but these occupy an exceptional situation: they face a wide embankment and river, and therefore their great elevation is perhaps less objectionable than others which are placed in a line with smaller houses in a street. A more flagrant instance of excessive height is that to which Mr. J. MacVicar Anderson referred in his opening address at the Institute. He cited the newly-erected additions to King's College at the eastern end of Somerset House (river front) as one instance of "selfishness" in architecture, and he was quite justified in drawing the attention of architects to the incongruity of design of the addition with the beautiful river front of Chambers's great work. Nothing on the Embankment has spoiled the skyline more than this hideous building, which rises above the line of existing roofs, and appears to "jar" upon the eye as it takes in the grand length of the river façade. But there is no control. The modern Metropolitan ædile does not exist as he did under the Roman Emperors; buildings of any height have been allowed to be erected, however ugly. Legislation ought to prescribe some more satisfactory rule, such, for instance, that height above a certain limit should be confined to architectural features only, such as pavilion roofs, domes, spires, and that these designs should be submitted to a committee of architects and artists whenever old buildings are raised or new ones erected in our main thoroughfares in proximity to existing buildings. The statutory limit of 90ft., as Mr. Anderson said, is excessive; it is true the London County Council have powers; but in practice the full limit is taken advantage of, and is likely to be exceeded in some cases by permission of the authorities. In course of time, everybody who wants to build in the Metropolis will take advantage of the full height of 90ft., and we shall have huge blocks of business premises and hotels rising in all directions, and, so far as we can see, the Council will be powerless to make any modification or reservation. In this manner, a statutory height is likely to create a disastrous effect on our streets; the public interest and health must suffer if lofty buildings are allowed to be erected, overshadowing smaller ones. Still, for all that, a limit of height is better than none. What is demanded, is a discretionary tribunal, to decide whether a building of great elevation would be prejudicial or not in a certain situation, which tribunal would consider both the hygienic and the architectural grounds for rejecting or permitting a certain building to be erected on a given site. A committee intrusted with such a question should consider the width of street, the kind of buildings adjoining the proposed erection, the architectural surroundings and sky line. The same discretionary power should be exercised in deciding on other points such as projection and other questions which have to be determined in respect of new buildings under the Act. Any successful building legislation ought necessarily to be able to draw a line between sanitary and constructive requirements, and those of an architectural kind.

Public edifices and architectural designs appear certainly to demand a separate treatment at the hands of the authorities, and it is in this direction that the London Building Law (Consolidation) Bill, proposed to be introduced by the Local Goverment Board next session, might do something. Consolidation is urgently called for. We can imagine what a labour it would be to unravel all the intricate meanings of statutes and sections of the Metropolitan Building Acts and the sections of the London Council (General Powers) Act of 1890. The additions of various statutes to the old Act of 1855 have made it no easy matter to interpret what the present state of the law is respecting any given subject. For instance, the by-laws and regulations as to projections and lines of frontage have to be sought for in different parts of the Act and its amendments. The formation of new streets, areas for light and air in front and rear, and regulations respecting theatres and buildings of public resort, are questions that now have to be discovered by reference to many sections conflicting or puzzling. All this means a great deal of labour that might be dispensed with if the provisions were amalgamated or recast.

The result of the present piecemeal legislation has been to give a monopoly of practice to the builder who has mastered the weak points of the statutes, and knows in what directions he may evade certain clauses of the Act. The London Council (General Powers) Act will make it more difficult for him, however, to pursue his malpractices. In foundations and drainage, underground rooms, the ingredients of mortar and plastering, and in sanitary details, we may expect some improvement. Yet the proposed amendments are still imperfect when we compare the provisions with those of the new by-laws in operation in many large towns, as those of Manchester and Sheffiel In London, interior construction of th ordinary domestic dwellings is seriously de fective. All sense of security is absent direct we enter the threshold. For the protectio of a community we require every building be interiorly non-inflammable, sanitarily pe fect, and sound in construction. Our by laws provide only imperfectly for these thr conditions. They insure fire-resisting walls but leave the floors and partitions to th conscience of the builder. Provisions f drainage are made; but the exclusion gases and moisture from the foundations a basement is not attempted. Walls of certa thickness and materials are scheduled; bu divisions internally may be of flimsy co struction, and staircases and buildings left the dictates of commercial convenience, as the case of the conversion of private in trade premises. The Public Health A model by-laws in operation in Manchest and other towns provide scantlings of timbe of a minimum size, and specify other requir ments, which leave a long way behind t present patchwork legislation which is operation in the Metropolis. Recent refor have been made, it is true, with the object assimilating, as far as possible, the Buildi Act of the Metropolis with the Public Heal Act in operation in other towns; but a attempt short of general reconstruction of t old statutes will be futile.

HOT-WATER ENGINEERING.—XXII.

Supply of Hot Water for Baths and Domestic Purposes.

estimating and conclusion.

THE subject of this paper enters very larg into all hot-water works, for in but ve few instances indeed are orders for these und takings given without the estimated cost be first ascertained and agreed upon. This not o applies to large, but also to small works, and a when an existing apparatus is extended or alte in any way. It is a tolerably simple matter calculate the quantity of tube and fittings quired. Examination and measurement asc tains this. Where the particular skill, or rath practice, is required is in fixing upon the ti that the men will be occupied from the commen ment to the entire completion of the apparatus

This is governed by several things—first particularly, the nature of the works. In t actual skill is needed to decide how much lab will be needed. Very commonly a small appara will cost as much as a large one, owing to many times the pipes have to deviate fro straight line. Pipes that all run straight wi out turns (which either require the pipe to be for a bend or elbow to be inserted, or have to heated and "set") cost the least, and th again, we may take it as a rule that a numbe angles generally signifies a want of room to w in, and when men are cramped for space which to use their tools freely increased time occupied in the work.

The size of pipe makes a very great differe in the time of labour, as well as in cost of mater Cutting and screwing 1¼in. pipe occupies, roug speaking, twice the time the same work on ¾in. wo do, and, say, half as long again as if it were A material difference in time is created by character of the fitter in charge of the work. two men are alike. The writer has kn instances where one man would be doubly as as another, yet both were skilled. The fast is generally a quick thinker (many fast work are careless, and turn out indifferent work: not this class of man that is referred to), and a happy knack of working straight away wit a hitch, and he can keep his labourer forw with his share of the work without an effort that the two men's work meet and agree in ev way.

The other (unless lazy) keeps just as stea at work, but either fear or a naturally partic habit makes him painfully careful in his w and the result is much greater time occup but with the class of man the writer refer the apparatus is afterwards a pleasure to be —exact and true in every detail. As a differe between men always exists (though not to

arked extent as this), it is generally arranged the rapid man to take estimate works of an nary character, and the slow-and-sure man ke time jobs. Of course, it is only good- l firms that have sufficient work for the latter of man; few firms can employ many such, ss they can afford to ignore competition.

Works have to be divided into those that are in town where the engineer's business is, and e that are in the country. Town is generally idered to be a 12 or 15 mile circle round the quarters, although it generally pays to make untry job of any that requires 1s. or 1s. 3d. be spent every day upon each man in elling expenses. Country money or allow- varies from 1s. to 1s. 6d. per day to cover ings and extra cost of food, for the workman not take his daily meals with him from home, the usual custom in town jobs. When a costs 1s. for travelling each day, it comes per to let the man lodge near the job, as, in tion to the fares, his time travelling both to fro has to be paid, and this may be an hour way.

he other things to be considered in a country are, firstly, the time going to and returning the place. If it be in Cornwall, Scotland, on the Continent, it is unnecessary to point that at least ten or twelve hours must be wed for travelling only, each way; and then an ra time if the house be a distance from the ion. In addition to this, an hour or two is n consumed in securing lodgings, and these not be obtainable near the works, so that a k is necessary each way every day (country ks are full of contingencies).

he majority of country residences that are e enough to need these works are generally a d distance from a railway station. This needs sideration, as it may be too far for the men walk, particularly if loaded with tools (these s are a heavy load). Then, again, the ing, cylinder, and other heavy goods have to ransported from the goods depot. It must be remembered that the carriage has to be d on these goods, or should any be purchased neighbouring town, they will be found more ensive, unless the town in question is supplied the manufacturers direct.

t is usually a foreman's duty to inspect works estimates, and should the work be at all ensive, he may require a clerk with him. In case the expenses entailed in furnishing the mate should be included in the cost. Then if order is secured, it becomes necessary for the e man to go down and start the men, and he y have to visit them afterwards, depending n what reliability can be placed in the fitter, the chief fitter, if there be more than one. ese journeys must be included.

There is no doubt that different firms have erent ways of preparing the cost of works, the following is the method adopted by some, ich although open to criticism, gives good ults. It is not intended to recommend this thod to the exclusion of others, as doubtless ter systems are to be met with; but it shows rly what work has to be done, it gives no portunity for a draw off or other service to be rlooked, it is difficult to miss even a few ings, then afterwards it is a good reference en the goods have to be booked out or ordered. putting the name of the service in the margin implifies the writing of the specification. To best of the writer's belief, no system exists arriving at cost by calculating at so much per t run. It does not seem possible, as the actual our and time involved may be three times as ch in one case as in another. If there is such system at all practicable the writer would very urally like to hear of it.

If a range and boiler, or independent boiler, is uired, this should be noted down in the esti- te book, with its price and general particulars, o details as to the fixing either of these. With former there may be brickwork needed, or eration to the chimney opening and mantel- ce. With the latter some smoke-pipe will be eded; and if the floor be wood, a non-in- mmable base for the boiler to stand upon must provided. It is necessary to put all these ngs down, as an estimate may not be accepted some time after it is given, and the memory uld not then be relied upon, if estimate giving uld be of daily occurrence. The range or ler is not usually included in the price for the t-water apparatus; it is shown separately, not ly in the estimate-cost book, but on the esti- mate itself. Many people show the price of the cylinder or tank separate from the pipe work also.

ESTIMATED COST (IN DETAIL) OF A MEDIUM-SIZED APPARATUS FOR A PRIVATE RESIDENCE.

	£.	s.	d.
Reservoir.—1 50-gal. cylinder, ⅛-plate (rough sketch with position of flanges)	3	15	0
1st Flow and Return.—12ft. of 1¼in. steam tube, 7s.; 4 connectors, 2s. 10d.	0	9	10
8 backnuts, 2s. 4d.; 2 (perhaps 4) bends, 1s. 10d.	0	4	2
2nd Flow.—8 ft. of 1in. tube, 30s.; 4 connectors and nuts, 3s.	1	13	0
6 bends	0	4	0
2nd Return.—60ft. of ¾in. tube, 16s. 6d.; 2 connectors and nuts, 1s. 3d.; 4 bends, 2s.; 1 1in. by ¾in. tee, 8d.	1	0	5
Cold supply.—80ft. 1in lead pipe, 37s 6d., 2 1in unions, 4s.; 1 1in. stop-cock, 8s. 6d. (full way)	1	17	6
Emptying service.—1 1¼in. by ¾in., 1s.; 3ft. ¾in. tube, 10d.	0	12	6
1 elbow, 6d.; 1 cock, 4s	0	1	10
Scullery sink.—1 1in. by ¾in. tee, 8d.; 26ft. ¾in. tube, 7s. 1d.; 3 e'bows, 1s. 6d.	0	4	6
1 connector and nut, 8d.; 1 cock, 5s. 6d.	0	9	3
Bath.—1 1in. equal tee, 8d.; 10ft. 1in. tube 3s. 9d.	0	6	2
2 1in. elbows, 1s. 3d.; 1 1in. connector and nut, 9d.	0	4	5
1 iron and lead union, 2s.; 3ft. 1in. lead pipe, 1s. 8d., connect to bath fittings	0	2	0
Housemaid's sink.—1 1in. by ¾in. tee, 8d.; 12ft. ¾in. tube, 3s 3d.	0	2	0
4 ¾in. elbows, 2s.; 1 ¾in. connector and nut, 8d.	0	3	11
1 cock, 5s. 6d.	0	2	8
Lavatory basin.—1 1in. by ¾in. tee, 8d.; 8ft. ¾in. tube, 1s. 8d.	0	5	6
3 ¾in. elbows, 1s 1d; 1 ¾in. connector and nut, 6d.	0	2	4
1 ¾in. iron and lead union, 1s. 3d., 3ft. ¾in. lead pipe, 9d., connect to lavatory fittings	0	1	7
Sundries (including mortar, cement, and plaster for making good brick and cement-work cut away), carriage of fittings, red and white lead, hemp, paint, solder, and other such small items, use of tools, supports for cylinder, pipe-hooks, hire of forge, and contingencies that cannot be foreseen, say	0	1	3
	0	0	9
	2	10	0
Fitter and assistant's time (if no range be fixed) say, 100 hours at 8d. and 5d.	5	8	4
Daily rail or bus fares, say	0	12	0
Foreman's first journey to inspect, and say two subsequent visits	0	16	0
	£21	12	7
Add profit			
	£		

The above, as will be seen, is the suggested cost of some works within a short rail journey of shop or works. If it should be a country job in contemplation, then the following must be considered:—Greater railway fares, possible travelling expenses from the railway station to customer's residence, and the same in returning; time occupied in the whole journey to and fro, and securing lodgings; greater expense in foreman's first journey for particulars, and subsequent visits; country expenses (lodgings, &c.); conveyance of goods by rail, and possibly by road. Sometimes a heavy "kit" of tools causes an excess fare to be charged when taken with the workmen.

Building materials, if required, are often difficult to get, and then only at some distance, which necessitates cart hire. This, however, might be included in the sundries. Sundry and contingent expenses are usually a little heavier on country jobs. If the men travel a distance sufficient to extend into and through the night, they generally expect to be paid not only their time, but at overtime rate for the night hours. This occurs when going to Scotland (some parts), Ireland, or the Continent.

Very commonly on country jobs, the customer prefers to find a local labourer to assist the fitter (if the job be small), this being done to save travelling time and expenses, and the lodgings, &c. This can be allowed sometimes; but it is rarely economical. A fitter, with a strange labourer, gets through his work but slowly. His own labourer would be accustomed to his work, and the two men's labour then fit together, so to speak, and more rapid results ensue.

As a rule, there are various conveyances at large country residences, and the customer will then undertake cartage of materials, men, &c., from and to the railway station. The customer may also provide what building materials are needed, if the estate has its own bricklayer, or odd man, who would have these things by him. This saves a deal of trouble and loss of time, as well as the expense.

When estimating to builders, or for new buildings, it is commonly arranged for everything in the way of brick, wood, cement, and decorating work to be omitted from the estimate, as a tradesman knows that a hot-water fitter cannot deal with these materials in the way a bricklayer or plasterer can.

When preparing estimated costs of work, it must be remembered that everything likely to happen must be allowed for. There are occasionally little troubles to be expected, but which may or may not transpire. The estimate must calculate upon their happening. If they do not, then so much the better. It frequently happens that in making provision of this sort, and the expected troubles do not occur, a greater than usual profit is made. Sometimes so much so that the customer would have better off if the work had been done by time charge. It is not always the client that insists upon an estimate that pays the least, by any means.

This concludes the writer's articles upon hot water, and it has merely to be pointed out that works of this description ought never to be done in a slipshod manner. There is much greater scope for a display of skill in this branch of engineering than is commonly supposed. A perfect apparatus even at this moment is not met with everywhere, by any means.

[The writer of these articles is Mr. F. Dye, of 176, Regent-street, London.]

THE SOCIETY OF ARCHITECTS.

THE members' dinner of the Society of Architects was held on Tuesday evening at the Holborn Restaurant. The President, Mr. W. Howard Seth-Smith, occupied the chair, and was supported, among others, by Mr. W. N. Colam, President of the Society of Engineers; Sir James D. Linton, President of the Royal Institute of Painters in Water-Colours; Mr. Wyke Bayliss, President of the Royal Society of British Artists; Mr. Henry Clarke, Chairman of the Improvement Committee of the London County Council; Mr. Robert Walker, past-president, and Mr. Geo. S. Bridgman, vice-president.

Mr. T. W. Connon, F.R.I.B.A., proposed "The Architects' Registration Bill Committee." He observed that he was under the painful necessity of controverting the observations made a few days ago by Mr. J. M'Vicar Anderson President of the Royal Institute of British Architects. It was certainly not true, as Mr. Anderson had stated, that the advocates of Registration admitted that it would be accompanied by disadvantages. The object of the Society of Architects was to be sure that every man who aspired to the position of an architect should prove that he had received the necessary technical instruction to fulfil the office he professed to perform. They were quite willing to admit that the Royal Institute of Architects, who were in opposition to them, were strictly within their rights; but he trusted that, although they had been working seven years to prove they were in the right path, they had no cause to despair of the ultimate result. The adoption of an Act of Registration would surely remove the difficulties under which they laboured in their profession, and he believed the time was not far distant when their object would be achieved.—Mr. Robert Walker, responded.—Mr. Ernest Day, F.R.I.B.A., proposed "The Fine Arts," and Sir James D. Linton, in reply, spoke hopefully of the recognition by Government of the claims of British artists.—Other toasts followed, and an exceedingly pleasant evening was spent.

An ordinary meeting of the Society was held on Wednesday afternoon at St. James's Hall, Piccadilly, W., the President, Mr. W. H. Seth-Smith, F.S.I., occupying the chair. The adoption of the annual report, which was summarised in our last issue, was moved by Mr. Robert Walker, of Cork, past-president, seconded by Mr. Ernest Day, of Worcester, and carried unanimously. The balance-sheet was also adopted, on the motion of Mr. W. Allport, hon. auditor, seconded by Mr. E. Tidman, treasurer. The following four new members were elected:—Henry John Bridgewater, A.M.I.C.E., of Ingfield, Marsden, Huddersfield; Frederick George Grierson, 9, Old Jewry Chambers, Cheapside, E.C.; Edward Beckitt Limb, 44, Great Russell-street, W.C., and Mount Zion, Tunbridge Wells; and James Wilson Leslie Simmons, P.O. Box 156, Pretoria, S.A.R. The president announced that a number of donations of architectural works and pamphlets, chiefly French and Belgian, had been made to the library. The Canon Guillaume van Casta, of Malines, an honorary member, had also been so good as to present the library with a copy of some hundreds of drawings

and patterns of lead-lights, which he had made in Belgium and France, and this would be found of great value for purposes of study.

The PRESIDENT then delivered

THE OPENING ADDRESS OF THE SESSION.

In his introductory remarks the President congratulated the Society on its good position. It seems to me, he observed, that your society is stronger than it was at the commencement of last session. The average quality of the papers read was far better than in any other previous year, the meetings were better attended, while there has been no diminution in numbers applying for membership, and the elections have been well sustained, notwithstanding the vigilant efforts of the council to exclude all who are not *bonâ fide* and well-qualified architects. The excursion to Belgium was in every sense a successful enterprise; full of profit to us as architects. But besides the usual work such a society as ours performs for the mutual advantage of its own members, the Society of Architects has devoted its energies to the interests of the entire profession and to those of the community at large in promoting the Registration movement. This is the great idea inspiring us at the present time—an idea which, when realised, will, we believe, not merely reform the profession, but give an immense impetus to, the art of architecture; and if all other reasons were lacking, this is alone a sufficient one for your existence as a society, and for the sympathy, support, and adhesion of all architects who agree that such a measure is necessary. It is a happy coincidence that at the very commencement of our session I am able to announce that after years of animated, and occasionally acrimonious, discussion, the architects of the great colony of Victoria have agreed that it is necessary in future to prevent any but properly trained men from styling themselves architects, and have drafted a Bill which (presented, as it is to be, to the Legislative Assembly with the unanimous support of the colonial profession) is, I presume, pretty sure to become law within the next year. The text of this Bill was published in the BUILDING NEWS of Oct. 23 last, and, by comparing it with the Bill which our own Registration Act Committee drew up with so much care, and which is still before the Imperial Parliament, you will notice that its provisions very closely follow those of the English measure. The President proceeded to quote from Prof. Aitchison's recent communication to the Architectural Association, in which it was remarked: "It is only by putting architecture on a constructive basis that we can hope to succeed . . . . All the architect can do after the plan or general scheme is settled, is to shape, to mould, and to pierce the various parts, and he may call in the sculptor and the painter to enrich important parts with carving and colour . . . . What we want is easily said: daring construction, fitness for the purpose both material and mental, and mostly with the necessary dignity, simplicity, and grace; but to do this requires extraordinary ability, the hardest study of many dissimiliar subjects, and ceaseless effort." We, who have had some experience of practice, the President continued, know how weighty and true these words are, and, therefore, protest against the assumption of the title of architect by any persons who have not devoted years of arduous study to the subject. The observations about the disastrous result of architecture falling into the hands of scholars, goldsmiths, painters, and sculptors in the Italian Renaissance period are in curious contrast to the petition sent to the Royal Institute of British Architects last spring from about fifty architects, protesting against all examinations, even such as their own body, the Institute, has established, which is designed to be no more than a test of a qualifying education. Surely the dual nature (scientific and artistic) of architecture constitutes it the most god-like of the arts; can we imagine that the joy experienced by the Architect of Nature is confined to the beautiful forms and colours with which He has dressed physical creation? And no architect can ever feel the highest delight which his art is capable of affording until he has designed and created on the same eternal principles. These exalted emotions must have been experienced by such men as Wren and Telford among Englishmen, and by others who in the various epochs and under different circumstances have led what Professor Roger Smith has termed "New Departures." In a paper contributed to the Transactions of the recent Congress of Hygiene, I have endeavoured to show that it is perfectly easy to test in a qualifying degree the taste and designing power (as well as the constructional knowledge) of candidates for our calling; and, after an animated discussion, the Congress passed the following resolution by a large majority:—"That this meeting cordially approves of the principle of the statutory examination and registration of architects." Such a resolution may be taken as indicative of the feeling of the public in our favour, and should be a further stimulus to future effort in this cause. The rapidity with which this movement has, wherever understood, grown and found favour throughout the profession in Great Britain is surprising—I say *where understood* with emphasis, for I have met and talked with many architects who were at first bitterly opposed to the idea, but have in no single case failed, after a short conversation, to obtain an admission that the arguments in its favour outweighed the apparent objections, or that they had totally mistaken the principle of the proposed measure: the opposition is not to be wondered at, considering how some persons, and some sections of the Press, have gone out of their way to misrepresent our aims and statements. Let me point out one or two leading misconceptions with regard to registration. I will first meet the objection that any universal qualifying examination will exclude many of the very best artists from practising architectural work, as by the peculiar constitution of the artist-mind they are impatient of acquiring even the little science required to qualify for practice. Well let us, for the sake of argument, assume that such men would not come up to the scientific qualification, and would be prevented by an Act of Parliament from calling themselves "Architects," there is nothing to prevent them adopting a title distinguishing them as devotees of the artistic side only of our work, say "Architectural Artist," and in art circles they might secure a good practice, and still more often they would be sought as partners by registered men less gifted with a soul for art, but enjoying a lucrative practice on account of their constructional and business qualifications; but bear in mind we do not seek to prevent on the one side great artists, or on the other charlatans, from being employed, if the public choose to employ them, to do our proper work: we aim to put a stop to the desecration of the title "Architect" by its free use on the brass plates of men who have had no training in so difficult a craft, and one, moreover, in the practice of which the health and pockets of the public are much at our mercy. Another point to be kept in the foreground is that we aim only to secure a *qualifying* and not a competitive examination. The latter would be as fatal to our art as the former would be beneficial. Another fallacy must be noticed—the statement that men qualified and practising at the time of the passing of any such Act would have to pass an examination. Such a stipulation would be unjust and impracticable. Every practitioner who can give reasonable evidence that he has enjoyed a *bonâ-fide* architectural practice would be entitled to registration, while the affidavit to be signed by each applicant for registration, affirming under penalty that he has enjoyed a *bonâ-fide* practice, will at the passing of the Act exclude men who have no right to be included in the profession. Not that much progress in the training of architects is not being made: the past year has been a memorable one in this respect. The Architectural Association, which has always been the best friend of the architectural student, and to which in the past many men now well known, and greatly esteemed in the profession, have devoted much valuable time, has, true to its genius, just established a comprehensive and methodical course of training both in the lecture room and studio, and has changed its system of gratuitous teaching for a paid staff. I hope that many members of the Society of Architects will give some practical expression of what cannot but be the universal admiration of the pluck and energy of the Association. It still wants £1,000 to relieve its committee of anxiety as regards the expenses of the new scheme, and, as practising architects, we can do much for it by encouraging our pupils and assistants to attend the classes. As individuals I hope it will be our first aim to assist one another in improving our designing power. I cannot say that to this end I wish more members had joined our Belgium excursion, for a party of forty is quite large enough for practical purposes; but one can scarcely exaggerate the influence for good upon our taste which a tour among such art treasures exercises; we shall carry the inspirations there received to our own districts throughout England. One conviction has been much impressed on me by that tour—namely, the importance of greater uniformity in style, if we are to make our cities, towns, and villages effective architecturally. Bruges, for instance, is so impressive because its style and materials are distinctive and sufficiently uniform. It is neither a museum of architectural styles, like Venice, nor is it monotonous, like Brussels or Paris; there is endless variety both of outline and detail, without the sacrifice of that essential breadth and harmony indicative of unity of purpose: that is what we must strive to set right among ourselves and advocate upon every possible occasion. We are, as a nation, too cosmopolitan and too eclectic to warrant the expectation of seeing some consistency of feeling prevailing throughout an entire city; but the revival of municipal authority, and the creation of the County Council of London, gives an opportunity, never before enjoyed, of effecting a great reform by laying down a rule that each newly-made street shall be built in this spirit to the approval of the superintending architect, assisted perhaps by a committee of experts. The happy result such a regulation would have can be judged by a visit to Norfolk-street, Strand, and Brook-street, Grosvenor-square; while we may take Shaftesbury and Northumberland Avenues as instances of the disastrous effect of the absence of a sufficiently stringent regulation in this direction. With respect to the Incorporation proposals, or, in other words, an application to the Board of Trade to register our society as a limited liability company, without the word limited being attached to the title, I have to mention that the council have received through the Board of Trade copies of statements from the Royal Institute of British Architects and its allied societies in the provinces, as well as from the Architectural Association, begging that our application may be refused. It is obvious, on the face of all these documents that both our object in applying for such a license, and the privileges which it is in the power of the Board of Trade to grant, have been entirely misunderstood; but we are glad of the opportunity these petitions afford us of making certain official statements as to the position, aims, and prospects of the Society of Architects, which, we hope, will for ever put to silence the ignorant and unfounded statements which have been circulated. In conclusion allow me to beg each member to strive to contribute something to the common stock of information, which the experience of every man must enable him to offer to his society. Many might do this by attending the ordinary meetings, and taking part in the discussions. Gentlemen, I wish you a prosperous, profitable, and enjoyable session.

Mr. R. WALKER, in a genial and humorous address, moved a vote of thanks to the President which was seconded by Mr. Day, put to the meeting by Mr. G. Soudon Bridgman, vice-president, and carried by acclamation.

A business meeting of members was then held to discuss matters of interest to provincial members.

A discussion took place as to whether the time had arrived for establishing a lending library open to provincial members, in which Messrs. Walker, Bridgman, Tidman, S. C. Johns, Day, Allport, A. J. Lacey, of Norwich, G. W. Ferguson, of Belfast, and others took part. The risk of loss and injury, the necessity of largely increasing the library, the cost of transit, and the need for duplicating books most in demand were pointed out by various members, while the desirability of establishing such a library was generally agreed upon, and on the motion of Messrs. Day and Ferguson the matter was referred to the council to report upon.

The question of holding sessional meetings in provincial centres was brought up by the President who suggested that it would be wise to follow the example of the British Medical Association, the Incorporated Law Society, and other provincial bodies, and convene meetings in various towns. Messrs. Edwin J. Hamilton, of Brighton, vice-president, Allport, Bridgman, Tidman, Johns, and Ferguson spoke in favour of the suggestion. Mr. R. Walker urged that as London was the most accessible point in the kingdom, it would be unwise to hold such an important

ıeeting in a provincial centre, however populous; ıe President's address should certainly be de-vered, and the report and balance-sheet dis-ıssed in the metropolis. The motion of Messrs. Iamilton and Tidman, approving of the holding f occasional meetings in large provincial centres, ·as carried unanimously.

On Wednesday evening the President, Mr. W. Ioward Seth-Smith, invited the members and a ırge number of friends to a conversazione, ·hich was held in the rooms of the Royal ıstitute of Painters in Water-Colours, Picca-illy, which was very numerously attended. The ɔmpany included Sir James D. Linton, Sir ames Douglas, Sir J. W. Ellis, M.P., Mr. 'embroke Stephens, Q.C., Mr. R. G. Webster, I.P., Mr. Wyke Bayliss, Mr. H. T. Ashby president Institute of Builders), Mr. W. H. ɔlam (president Society of Engineers), Pro-ɛssor Banister Fletcher, Mr. James Orrock, ɔr. W. H. Corfield, and Dr. Dyce Brown.

THE SURVEYORS' INSTITUTION.

THE session of the above society, which commenced with the ordinary general meeting f Monday last, was opened by an address prepared y the President, Mr. R. C. Driver (but in his unvoidable absence read by the secretary, Mr. J. C. ɔgers), in which the present position of the Institution, of the profession at large, and of the ıterests with which it is concerned, were dealt ·ith in a manner at once clear, concise, and xhaustive.

After thanking the members for having elected im for a second term of office, and congratulated hem on the fact that, during his tenure of office, heir numbers had increased from a little over ,600 to nearly 2,300, the President took occasion ɔ remark on the change which had taken place in he constitution of the society, when, in August ıst, admission to membership without examina-ɔn ceased, in accordance with the provisions of heir charter. It seemed, he said, a not unfitting ccasion for a review of the work accomplished y the Institution during its twenty-five years of xistence, and a comparison of early promises ·ith subsequent performances; or, as the build-ıg surveyor might put it, to "measure up the ·ork," and take account of "extras and omis-ɔns" in the light of the original "specification." he Institution was founded "to secure the dvancement and facilitate the acquisition of that nowledge which constitutes the profession of a urveyor," "to promote the general interests of ıe profession," and to do so "for the public dvantage." The 27 volumes of "Transactions" nd "Professional Notes," comprising some 2,000 pages, dealing practically with almost very subject with which a surveyor was con-ɛrned, and the thorough and complete system f professional examinations, which, in spite of ll opposition, had been established ten years ago, nd through which many hundreds of young ıen had passed, were sufficient evidence of what ad been done towards the fulfilment of the first f the objects which the founders of the Institu-ɔn had in view. The second object had, he ıought, been fully attained by the action of the nstitution in binding together nearly the whole ody of surveyors into one powerful organisation, nd by obtaining a charter, entitling the members ɔ distinction as duly-qualified members of a ɛgular profession. Then the fact that, under ɛveral Acts of Parliament, the Surveyors' In-titution was constituted one of the recognised uthorities on important public matters, and that ; was not seldom the medium for the collection nd communication of most valuable information ɔr the use of Royal Commissions and Select ɔmmittees, entitled them to claim credit on their ıbours "for the public advantage." "We are ain enough to believe," said the President, ' that we have provided the public with a means f distinguishing between the qualified and the nqualified practitioner." Turning to general ɔpics, Mr. Driver gave some statistics which ad been collected by the Institution by means f its provincial committees of the depreciа-ɔn in agricultural land values in every part f England and Wales. The figures were ɔmewhat startling to a mind not intimately ɔquainted with agricultural affairs; but the 'resident assured his hearers that they had been ɔllected, compared, and compiled with the tmost care, and might be taken as a nearer ɔproach to actual facts than had been previously ɛtempted. In the Chiltern Hills district of Oxon the fall in rents during the last 14 years had been as much as 75 per cent. South-East Essex showed 70 per cent. reduction, while Cambridgeshire, parts of Berks and Suffolk, and the whole of Essex had experienced a decline of over 50 per cent. in rents during the same period. And so, down through a long list of percentages taken in falling order, and of which one might roughly take the average to be 25 per cent., were to be noted the effects of the agricultural depression in the various districts. The farms from 50 to 200 acres had fallen less in value than the larger ones; but the fact was patent that in many parts of the country a very serious depreciation in values had taken place. The causes of this depreciation were bad seasons, cheap imports, and low freights; and, putting aside the seasons as beyond human calculation, he proceeded, by further statistics, to set forth the present position of things, and to found on them a somewhat hopeful forecast of the future. The very general movement of the agricultural population towards the towns, as shown by the late census, was next considered, and a hope expressed that the Report of the Royal Commission on Labour would, when issued, throw some light on the causes of, and perhaps suggest some remedy for, the present serious state of things. Mr. Driver referred to the new order of affairs under which the large surplus which the Government found at their disposal was placed in the hands of the various county authorities, usually to be devoted to the promotion of technical education, and, while expressing considerable doubt as to the wisdom of what he described as "an extravagant endowment of non-existent agencies for purposes yet to be determined," and predicting that, at least, the difficulty would not lie in the direction of the disposal of the money, he firmly believed that honest efforts were being, and would be, made to give effect to the not very clear provisions of the two Technical Education Acts, under which any scheme of the kind must be worked. The Tithe Act of last session would probably remove a source of irritation which had been made a ground of agitation, and assist in the letting of some of the poorer land. He felt disappointment that the long-promised Metropolitan Improvements had again been "deferred, owing to a difference of opinion between our local and Imperial Parliaments" on the principles of assessment, and believed that "some of the fiscal purists who joined in the Quixotic crusade that resulted in the abolition of the Coal and Wine Dues, which formed such a useful fund for public improvements, are now in some doubt as to the wisdom of their proceedings." The Brine Pumping Act, though limited in its operation to a comparatively small area, introduced an entirely new principle of compensation, and, it was quite possible, might form a precedent of which the owners of property in the neighbourhood of large aggregations of works which, in one way or other, were detrimental to such property, might avail themselves. The proposal to assess ground rents or land values and vacant building land to the payment of local rates was a public question which had the most direct interest for surveyors, and this not only because of the immediate effect on the value of real property, but because these proposals were closely connected with the theory of the national or public property in the increased value of land. The President reviewed at some length the evidence before the Parliamentary Committee, and said that the principal advocate for the change maintained that all rates should "come out of property," which in towns, he said, was divided into (1) land, which derived its value from the presence of the community, and not from the expenditure of capital on it, and (2) buildings, which derived value from the outlay of private capital, and produced a return which, being subject to risk, was not of equal value to that produced by land, and should, therefore, be taxed at a lower rate. The whole permanent element of communal expenditure went, in this witness's opinion, to increase the value of the land rather than the buildings on it, and he thought that sites should contribute to such expenditure at a much higher rate than buildings. He proposed to assess them separately, say at 6s. in the £ on the land, and 4s. in the £ on the buildings, collecting the whole from the occupier, and allowing him to deduct it from his rent, and so on, in proportion, from each payment of rent down to the ground rent, if any. As regards the ratings of buildings, he would allow some readjustment of the terms of existing contracts, but rates on land values should be borne by the site owners as a new burden, without alleviation. He would assess all vacant building land at its annual building value, thus forcing it into the market, with the object of leading to a better supply of houses. These and other arguments from the same side the President proceeded to answer in a manner equally lucid and convincing to the practical mind. The increase of the value of town land did not, as he showed, depend on communal expenditure, for it took place as really in the roughest mining towns of South Africa or America, without any communal expenditure, as in London. The members of a community made provisions for their own comfort and safety, and it was the value already created which made expenditure necessary, and not the expenditure which created the value. It had been clearly proved, as a matter of fact and not of theory, that rates, so far, at all events, as London is concerned, do "come out of property." The separate assessment of sites would in many cases involve the payments of rates on ground rents which had been bought at a high price as investments on the faith of their stability of value. Nor was there any unfairness in the existing contract to justify such a confiscation, for the rates existing at the time of the granting of the lease fell on the ground landlord, and if no rates had been payable on the building, the lessee would have given a ground rent of just so much more as he was spared in rates; and, as the rental value of property in London had increased much more than the rates had increased, the building owner's liability for all increase of rates had been more than covered by the rise in the value of his leasehold interest. Building land had no value as building land apart from the value of a building that was, or might be, upon it. It was shown that there was no necessity for forcing such land upon the market, and that the proposals, if carried out, would seriously interfere with the market for building plots if the ownership of them involved an annual expense while the land lay unproductive. The speaker expressed a firm conviction that the taxes proposed were neither necessary nor just, and, by placing investments in real property at a serious disadvantage as compared with investments in personalty, would seriously affect public prosperity by restricting the free supply of land and houses. In these contentions he was fully supported by another witness before the Committee in the person of one of the past-Presidents of the Institution.

A vote of thanks to the President for his address having been moved by Mr. Wheeler, Q.C., and seconded by Mr. T. Blashill, and unanimously passed by the meeting, the proceedings then terminated.

THE DECORATIVE TREAMENT OF NATURAL FOLIAGE.*—IV.

IN his fourth and concluding Cantor lecture on this subject, delivered on May 4th last, Mr. Hugh Stannus, F.R.I.B.A., proceeded to the application of the rules already laid down. He observed that the decoratible surfaces on which natural foliage was applied were classified according to their shape, position, and function as panel, border, band, frieze, and indefinite shape and form. The decoration which might be applied to these surfaces was classified, according to its suitability to the shapes, as: panel ornamentation, border ornamentation, frieze ornamentation, diapers, body ornamentation, and free ornaments. The inclosing lines bounding a panel might be treated in colour (as in surface decoration), or in relief (as in architectural work); and they precluded any extension of the surface. Panel ornamentation might be rich in character. Panels were not a functional part of construction, and they were generally chosen as the place for the most elaborate work and the highest beauty. Their position with regard to the horizon governed the altitude of their ornamentation: when in a vertical plane, as on a wall, then it might be in a vertical attitude, and axial objects might be introduced; and when horizontal, as in a ceiling, table, or floor, then it would be indeterminate in attitude. The ornamentation should be complete in each panel or set of panels. Border ornamentation should be severe. Borders, being functional, should be

* Summarised, by permission, from the *Society of Arts Journal*.

subordinated to the panel. Their variability of attitude further restricted the class of elements, and only permitted such as might be reversed in attitude without incongruity. Border ornamentation should be capable of lateral extension, governed by the principle termed repetition, and by change of direction at the angles. Frieze ornamentation was generally rich in character. Friezes, being not functional, were often treated with the same elaboration and beauty as panels. Their invariable verticality of attitude permitted a higher class of elements than was suited to borders. Frieze ornamentation should be capable of lateral extension, and of change of plane at the corners. Indefinite shapes were generally treated with either free ornaments or diapers. Diaper ornaments were capable of indefinite repetition. Each complete unit of the diaper was circumscribed by lines, which formed an oblong or a regular geometrical figure, and were termed the repeat-lines. It was not necessary that the pattern-figure should show parallelism to them: more often, e.g. in textile fabrics, the repeat-lines cut through leaf and flower indiscriminately. Body ornamentation might be rich in character on vases, but must be reticent on pedestals and similar objects. For the bodies of vases diapers, although sometimes employed, were unsuitable, because uninteresting and difficult to apply—decoration which had one subject or meaning was the best for such surfaces. Passing on to consider the application of decoration to shape, the lecturer laid down the rule that when natural foliage was applied to an object for the purpose of decoration, it should be so treated as to appear to acknowledge the shape in which, and the surface on which, it was used. This could be effected in two manners — by keeping the decoration within the limits imposed by the enclosing lines, or by diffusing the decoration over the inclosed surface, the two methods being known respectively as parallelism and distribution. The former — parallelism — was an important principle in the application of foliage to inclosed shapes. All decorative art which appeared to acknowledge the given shape produced the impression of having been made for its place; and it was thereby more pleasing than if it gave the effect of being a portion that had been cut off from a larger panel. To attain this the lecturer advised a student, after the foliage was drawn to a given shape, to test the parallelism by drawing lines all round inside the latter, and parallel to it at a distance of, say, about ¼in., the distance varying of course with the scale of the drawing. He would then be able, should any leaves overlap this parallel line, to re-draw and move them back; and should any not approach it sufficiently near, to bend out the stems. Portions that were redundant should be cut away. These adjustments ought to be done with judgment, and the natural growth should always be adhered to. A number of progressive examples were shown illustrating how a design could be adapted and made more suitable for its position by increasing its clearness and parallelism. The second principle of treatment, distribution, was more important in those applications of foliage which did not require parallelism, as, for example, in diapers. In these patterns evenness of distribution was necessary, and any larger ground spaces that produced the impression of being "holes" were to be avoided. The extreme of evenness and density of distribution was seen in some Indian patterns, in which the parallelism was completely carried all round the inclosing lines, and the distribution was so uniform that all the interstitial ground spaces were of approximately even area. The opposite extreme of irregularity and sparsity was illustrated in many Japanese decorations, in which neither parallelism nor distribution was visible. Many English designs occupied the middle place in the scale between the uninteresting "texture" of the Indian and the irregular "spotting" of the Japanese work. While the Indian filled and the Japanese ignored the confining shape, the English design occupied it. Further than the distribution of the whole of the features of a plant over the given shape, there was a higher kind of distribution—the placing of the flowers among the leaves of a design, which was more difficult, but of the highest importance. There should be, Mr. Stannus thought, a feeling that the flowers were scattered over every part of a given shape, though not in positions which would be likely to attract attention. In panel ornamentation any appearance of artificiality in position or attitude ought to be carefully avoided. Repetition was never appropriately applied to the high-class features used in panels. The attitudes of leaves near the inclosing lines should be varied, to avoid artificiality and monotony. Artificiality in the position of flowers in panels should always be avoided. Indeed, flowers on the same vertical line, or on the same horizontal line, or in opposite angles, should never be seen in a design. Another useful rule was to avoid parallelism and proximity of the stems to inclosing lines, and also axiality of the stems in the centre of panels. Border ornamentation should be connected and not fragmentary. It should be always subordinated to the panel, in beauty of composition and colour; and never treated in a pictorial manner so as to lose the surface. The general lines of growth should be longitudinal—*i.e.*, following the direction of the border. Among the artificial borders were the vertebrate, the undulating, and the interlacing; and these were useful as suggestions for the general lines. Plants which had long stems or branches were most suitable for borders. The distribution of the design should be denser and more regular than in panels, and a good method of emphasising the border was to increase the density of the design towards the edge next to the panel in the centre. Frieze ornament should never be treated pictorially; but the semi pictorial was an appropriate treatment, and it should be rich and beautiful. The lines of growth should be upward or oblique. There should be no repetition in friezes. Diapers were used for three principal purposes—(1) to give a pleasing texture, at small expenditure, in places where more important work was not necessary; (2) to disguise imperfection in material—*e.g.*, where the pattern hid flaws in the casting or dropped threads in the weaving, &c.; and (3) to disguise the effect of usage, where the variegated surface made grease spots and stains not so conspicuous as they would be on a plain one. The effect of a texture resulting from careful distribution was therefore desirable. There were degrees in this evenness due to the character of the textile, from the dense distribution of the common carpet, to the sparse distribution of the brocade silk. In diapers, stems, where introduced, should be inconspicuous; but, if used at all, ought to be natural in treatment. Plants of different kinds could be effectually used together in a diaper: they should be very varied in character, but not incongruous. Flowers in diapers should be so arranged in position as to avoid alignment in any direction, and this, where repeats were employed, was by no means easy. The lecturer suggested that one way of overcoming this difficulty was to draw vertical, horizontal, and oblique lines through the first flowers introduced into a design, and then these lines should be carefully avoided in locating the other flowers. A good method of placing the flowers in a diaper was to paint a number of individual flowers, roughly, on loose pieces of paper; and cut them close round to the shapes. These loose flowers might then be moved about experimentally, until the effect was satisfactory; when they could be fixed permanently in their places, and the correct working-drawing made. There were two methods of designing diapers: In designing with artificial foliage, an artist began with a general idea of the composing lines; but in designing with natural foliage, he began by drawing a branch of the plant, and he did not attempt to make it follow any lines but those which God designed for it. He made duplicate drawings of this piece or branch, and then arranged them at the repeating distance prescribed by the technical necessities of the material. He filled in the gaps with more nature, if required, considering the placing of the flowers first. This method of composing a diaper by the arrangement of overlapping duplicates of a study from nature was more likely to be natural than the method of making lines first, and then clothing them with leaves and flowers, because there was no predilection or prejudice in favour of one set of lines over another, and the student was willing to take Nature's line; and further, the result would be masses of foliage rather than lines of stems. Indefinite shapes and forms, and also those of irregular or extreme proportion might often be easily decorated with natural foliage when the more intractable lines of artificial foliage could not be applied. Mr. Stannus having referred to the value and use of such unnecessary objects as vases, ribbons, and tablets, and also of animals and birds, in conjunction with natural foliage contended that the study of natural foliage would enable the artist to ignore the historic styles—the ruts worn by the wheels of our predecessors—except in scientific archæology. Natural foliage was, he held, the only kind of ornamentation that was permanently pleasing, or had been used in all times and places. In conclusion, the lecturer said that the rules which he had given were the result of some experience; but they were, at the best, only grammar. There was a grammar of graphic representation in all arts, in which minute rules were laid down for the guidance of the students; but there was also an enlarged grammar, of inspired expression, in each, which the masters laid down for themselves. The masters in the arts might appear to ignore rules, and produce thereby picturesque effects; they were great by reason, not of the broken rules, but of the power that was above rules. The student was therefore advised not to commence by striving to be picturesque (probably in this he would only be copying the faults of another), but to choose good grammar and simplicity; and in time, if he had it in him originality would be added unto them. The rules should not be too apparent—the student had to hide his art. The spectator should see Natural foliage, and should feel that it decorated the space. "Ars est celare artem"; and if the work appeared too artificial, then had the worker failed.

DRAWINGS IN BLACK AND WHITE.

IN the St. James's Gallery, King-street, St. James's, Mr. Mendoza has opened this week his annual exhibition of pen-and-ink drawings and monochrome paintings in oil and water colour. The collection does not strike one as exceeding in interest those of previous years, and we miss several well-known names of those who used to contribute. The post of honour is occupied by Mr. Frank Dicksee's illustrations to Shakespere's "Othello," which he has drawn for Messrs. Cassell and Co. They are sumptuously designed and exquisitely delineated, but their effect is heavy and old-fashioned looking, leaving a strong impression on the mind as to the labour of the artist with all his detail, heavy draperies and crowded groupings. In contrast with these elaborated works hang two somewhat slight studies by Mr. J. MacWhirter, A.R.A., of the Temple of Concord and the Church of S. Agostino. Both little pictures, done in grey and whites, give a fine idea of breadth and expanse of landscape, and a sense of size due to the skill of the painter in realising aërial perspective without needless effort. The "Old Garden at Girgenti," shown also by the same artist downstairs, is another work of similar merit. Here, too, is a view of the Gulf of Spezzia, by J. Fulleylove, R.I., deserving notice. Among the few architectural drawings exhibited we may name, as a laboured but clever black-and-white sketch, the Market Cross at Chichester, taken by Mr. Albert C. Thompson from the favourite standpoint, with the cathedral spire in the background. The stipple point has been too freely used to allow of the picture being correctly described as pen-and-ink. Mr. Walter F. Cave sends a small, unimportant sketch of the end of the apse of a church and some old, ugly houses in the Rue des Barres, Paris. The Magdalen Tower at Oxford, shown midst the snow in winter, is represented by Mr. Claude de Neuville in line. The point is taken from the water's edge, looking up at the tower, with the Magdalen bridge to the left of the spectator. An overdone subject thus obtains somewhat the air of novelty, an effect increased also by the snow. "Murder Hole," Lincoln, looks like a cutthroat corner by the side of the canal, which, in a heavy oil picture, is rendered in blacks by Miss M. Logsdail, who in a masterful way knows how to catch the atmosphere of the place, and to suggest the local colour of the scene. "The Chancery, Lincoln, in December," is also well delineated by her. Mr. J. J. Witcombe has a pretty sketch of a half-timbered Kentish cottage, hung too high for inspection, and the same difficulty obtains with Mr. F. P. Barraud's pen study of St. Jacques, at Dieppe. He also exhibits a picturesque drawing of a street in Rouen, with St. Maclou seen over the gables of the houses. From the same city is shown a large etching of St. Ouen, representing the central lantern and south portals, resplendant in their glory of lace-like traceries and cuspings, and having

apels of the choir in the fore-part of the composition, which is enlivened by several typically odern costume figures up to date in front of .e church. The artist is Mr. Edward Slocombe. e likewise exhibits a small etching of the thedral belfry at Newcastle, looking up the astle Garth. Miss M. Logsdail hangs on the ne near this last frame a pen-and-ink drawing the Bridge of Sighs, Venice. Strikingly eated with heavy shadings, and delicate detailg of a sculptured grotesque in the foreground. Pensiveness" forms the title of a fine study a girl's head by Miss J. Turner, who draws crayon; and we may equally commend Mr. E. Cox for his spirited brush drawing called Treachery." A village maiden, with a halter her hand hidden behind her back, is endeauring to coax two calves with a root, so that .e may catch them the more readily. The ads of these young things hardly look right, out the snout particularly; but there is a dash out the drawing which pleases us and shows ility. Mr. James Webb's oil-painting of Craft by Moonlight, near Rotterdam" is one the best pictures in the room: it would hold own in any gathering of monochromes. Miss . L. Bowley designs headings and initial letters cely, and draws them well. "What Now?" the title of a comic drawing of a terrier puppy ddenly looking round full of wonder as a etle is climbing up on to the inquirer's back, t quite out of his sight; hence the look of aint wonder, "What Now?" Mr. Edmund ldwell is the artist.

Before concluding these catalogue references e may draw attention to an attractive group of rabs and camels, by Mr. J. Shaw Crompton, lled "Visiting the Outpost." The sunlight in is drawing is unmistakable, the old chief on e central beast, shading his eyes with his hand he scans the horizon, is capitally drawn, and ere is a dash and go about the whole thing hich is commendable. We also like very much little pen-drawing by Mr. A. Paoletti, of a enetian Fisher Boy standing on a plank oking a pipe, and angling with an air of a ritable Izaak Walton. The pastel in colours a grandly-massed but voluptuous girl's head, Mr. Arthur Wasse, entitled "A Bacchante," undoubtedly clever; but we question the troduction of coloured subjects in such a colction as this. We much prefer the same artist's her female study down-stairs, called "Absent, t Present," drawn in black and white. The hibition is worth a visit when passing.

HE LONDON COUNTY COUNCIL, AND ARTISANS' DWELLINGS.

AT Tuesday's meeting of the London County Council, Earl Compton moved the adoption the report of the Housing of the Working asses Committee as to the erection of the rker-street lodging house, Drury-lane. The nders ranged from £13,988 to £18,500, and the e lowest were:—Mr. F. T. Chinchen, £13,988; essrs. J. Godfrey and Son, £14,297; Messrs. olloway Bros., £14,300; Messrs. Perry and ., £14,746; Mr. C. Wall, £14,850. When e committee first reported to the Council in arch, 1890, recommending the erection on the rker-street site of a model lodging-house accommodate 320 persons, the cost of the ilding, including furnishing, was estimated at 1,000, and the net return, to yield 4 per cent. on the outlay and value of site, was based upon charge of 4d. a bed per night. The lowest timate was £4,000 more that the original estiate, or £3,000 more if certain alterations in the ans where taken into account. Messrs. Gibson d Russell, the architects whose designs were lected in competition, attributed this difference part to the advance in the cost of building aterials and machinery, and the rise in wages hich they put together as representing per cent. of the total cost), and in part to ms added to the specification at the request of e committee, such as a separate building for ndry purposes, iron and cement divisions to bicles, instead of wood, stone facing to ilding, and granolithic pavement in lieu of ment. Referring to the tenders themselves, appeared that Mr. Chinchen, whose tender as the lowest, was not prepared to carry out e work. The next tender was that of Messrs. odfrey, which was only £3 lower than that of essrs. Holloway. After careful inquiry, the mmittee were of opinion that it was desirable at Messrs. Holloway's tender should be accepted. The corrected estimate of the cost of the building would be—Contract price, £14,300; cost of furnishing, £750; architects' commission, clerk of works, and quantity surveyor (not considered in original estimate), £1,100; total, £16,150. If a charge of 5d. per bed per night were made, after allowance for wages of persons to be employed, for empties, and for repairs, a return might be expected of over 4 per cent. on the above sum and on the value of the site, which for that purpose the committee calculated as ground-rent at 3d. a foot. The committee recommended that the Council do accept the tender of Messrs. Holloway Brothers.

Mr. Acworth, as an amendment, moved that the matter be referred back for further information. A long discussion ensued, and this amendment was rejected by a large majority. Mr. Hutton moved a further amendment, "That the committee be instructed to reduce the estimated cost of the Parker-street lodging-house to conform with the original estimate of £10,250." This was negatived by 54 to 25 votes, and the report was then adopted.

ELECTRO-LEAD TESTS.

A NUMBER of gentlemen connected with the engineering and building interests attended on Wednesday at the works of Messrs. Joseph Westwood and Co., Millwall, to witness a process by which iron, steel, and other metals may be effectually covered with a coating of pure lead, and be thus protected from the corrosive action of the atmosphere. Members of the committee, with their engineer, Mr. E. P. Binet, Assoc.M.Inst.C.E., of Great Winchester-street, met the visitors at the works. The process is an American invention, and claims to be a substitute for the ordinary galvanising process, and, therefore, from the wide extent of its applications to metals is likely to create a revolution in the galvanised metal trade. To the engineering and architectural professions these tests are of considerable interest, as the system adopted enables sheets for roofing, structural and ornamental metalwork, bars, wires, &c., to be treated either before or after the shaping, riveting, and other workshop operations have been performed. The most important fact connected with the process is that, instead of injuring the iron or steel by rendering it more brittle or crystalline, the coating of lead, which it receives in the bath, increases the ductility of the metal and even its tensile strength, and enables it to be subjected to severe tests without fracture of the coating.

The process of cleaning the iron in a bath containing a weak acid solution, through which an electric current is passed, was first shown; after which the articles to be treated are passed through limewater or clear water heated to 120°; then immersed in a liquid metallic solution containing hydrochloric acid and zinc and tin granulated in equal parts. The acids are then neutralised, and the iron is thus chemically cleaned and ready for the bath of prepared molten lead which finally coats it. One great merit of this preliminary chemical treatment is that the lead adheres to the iron. The chemical preparation gives the metal a strong affinity for the lead, by which means the iron so treated can be bent double and subjected to the hammer without deterioration or any exfoliation of the coating. Several practical illustrations of this were given, which proved its great superiority to galvanised sheets when similarly bent. No action is set up between the iron and lead coating, as in the case of iron and zinc in galvanised iron. The report of Messrs. Westwood shows that samples of round and square iron coated with lead stood a severer test before breaking than when they were galvanised. When doubled up cold, the galvanised iron scaled off and exposed the surface, while the lead-coated metal did not show any fracture of the coating. Sheet-iron was also tested with similar results. The lead-coated iron can be worked and put into any shape suitable for roofing. Many other tests with bolts and nuts, flanging, deck-bolts, gas and water pipes, ship-plates, &c., were reported. By this process the caulking required to riveted pipes can be dispensed with, as the lead coating makes a perfect water-tight joint at the lapping. With regard to cost, it is stated there is a saving in favour of this process of £9 per ton, or nearly 40 per cent. compared with galvanising—an important consideration—added to which the lead-coated metal is stronger, more ductile, and far more durable. It would be superfluous to say that the process is well adapted for every variety of engineering and constructive ironwork: bolts, chains, anchors, plates for ships, and various articles. The patents are owned by a syndicate, under whose auspices the experiments have been made, and they have decided to grant licenses to the different galvanising firms.

BOOKS RECEIVED.

A History of Nottinghamshire, by CORNELIUS BROWN, author of "Annals of Newark-on-Trent," &c. (London: Elliot Stock, 62, Paternoster-row.) This is another of the series of "Popular County Histories," and appears to be equal to any of its predecessors. Mr. Cornelius Brown has done full justice to its past history, its Bardolphs and other noble and ancient families, many of whom still retain their stately and ancestral homes. Many distinguished names are connected with this county, amongst them Byron, Kirke White, Cranmer, Secker, Warburton, Erasmus Darwin, Brewster, &c. For antiquarian and architectural readers, the notes contributed by Mr. Godfrey and Mr. J. Whitaker, F.L.S., will be found of interest. The county seats like Blythe, Newstead, Wollaton, Clumber, Thorsby, Normanton, and churches including Southwell Minster, Newark Church, Worksop Priory, and other famous edifices are dealt with. Legends and traditions, geology, the flora and fauna, dialect, and folklore receive careful attention and exposition, and the author seems to have brought under contribution all the State papers, historical manuscripts, the Rolls series, and every work of topography, history, and biography that could throw any light upon this "historic shire."——Another architectural poet of no mean order seeks fame in the person of Mr. John Cotton, F.R.I.B.A., of Birmingham, whose *Song and Sentiment* and *Lyrical and Other Verses* are published by Messrs. Simpkin, Marshall, Hamilton, Kent, and Co., Limited. The volume is enriched by a number of very creditable illustrative etchings, also by the author, who advantageously combines the qualifications of the bard and the artist. No thoughtful professional brother should fail to buy a copy of the book. He will find much in it to charm him, whatever his mind. Here, for instance, is a sonnet, of which, either as regards matter or method, William Morris himself need not have been ashamed:—

> Ah me! If but the Muses would inspire
> My sorry self with some great minstrel's skill
> That I might catch men's ears and throw a thrill
> Through all their spirits when I touched the lyre;
> Then would I bid them Liberty acquire!
> And Superstition's fetters loose until
> None owned a master save his reasoning will;
> Enfranchised thus the freed mind might aspire,
> And my blest song should win man to regard
> The rights of all his fellows as his own;
> No upstart then might lord it from a throne,
> No warring knave or bigot priest retard
> That wide fraternisation which alone
> By fostering peace can happiness award.

CHIPS.

At the monthly meeting of the West Hartlepool town council, on the 3rd inst., Mr. W. J. Steele was unanimously appointed assistant surveyor in place of Mr. M. Scott, who was recently appointed surveyor of the new borough of Thornaby (South Stockton). Mr. Steele served his articles with Mr. J. W. Brown, A.M.I.C.E., borough engineer, of West Hartlepool, in whose office he is now engaged.

At Reading, on Wednesday week, a statue of Mr. George Palmer, late M.P., was unveiled on the occasion of the opening of the park presented by that gentleman to the borough. The park is 21 acres in extent, and lies between St. Bartholomew's Church and the South-Eastern Railway; the pavilion, including caretaker's house and refreshment rooms, has been executed in oak and dressed stone by Mr. J. H. Margetts, from designs by Mr. W. Ravenscroft, of Reading, from whose designs the grounds have been laid out and fenced. The statue is of bronze, and was carried out by Mr. George Simonds, who is a native of Reading; the pedestal is of red Peterhead granite.

A commission of German archæologists has pronounced seventeen Egyptian mummies of kings and queens now in the museum of Berlin to be modern forgeries, executed at Alexandria by dealers in antiquities. No less than £40,000 has been expended within a few years by the museum authorities in the purchase of Egyptian antiquities, which have most of them now fallen under the same suspicion of spuriousness.

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FREE LIBRARY AND SCIENCE AND ART SCHOOL, ASHTON-UNDER-LYNE.—THE ANGEL FRIEZE, ST. PAUL'S CATHEDRAL.—ST. LUKE'S CHURCH, WINNINGTON.—SKETCHES IN SOMERSETSHIRE.—HOUSE, KEMNAL WOOD, KENT.—INTERIORS, THE GRAND HOTEL, NEWCASTTE-ON-TYNE.—DALY'S NEW THEATRE, CRANBOURNE-STREET, W.C.

Our Illustrations.

FREE LIBRARY, ASHTON-UNDER-LYNE.

The Free Library and Technical Schools at Ashton-under-Lyne, of which we give illustrations this week, are now in course of erection. The cost of the building is being defrayed by the trustees of the late Mr. George Heginbottom, J.P., of Ashton-under-Lyne, who placed a sum of £10,000 to the credit of the corporation for that purpose. This is one of a long series of munificent gifts left by the gentleman named to be expended on particular objects at the discretion of his trustees—viz., Mr. Thomas Heginbottom, J.P., Mr. Ely Andrew, J.P., C.A., of Ashton-under-Lyne, and Mrs. Atkinson, of Carlisle. The contract for the building has been let to Mr. Allen Holmes, of Ashton-under-Lyne, for £10,585, exclusive of ventilating, heating, or fittings. Messrs. John Eaton and Sons, of the same town, are the architects.

THE ANGEL FRIEZE, WELLINGTON MONUMENT, ST. PAUL'S CATHEDRAL.

The Autotype Company have just produced, under the direction of Mr. Hugh Stannus, F.R.I.B.A., a series of plates, collected in a handsome folio,* illustrative of the principal works by the late Alfred Stevens. By the courtesy of the publishers, we reproduce, in a reduced form, one of these autotype illustrations, and we have chosen the Angel Frieze from the Wellington Monument in St. Paul's Cathedral. The brief memoir and account of this master's chief works with which Mr. Stannus has enriched his monograph supply many details of a highly interesting character. Alfred Stevens was born of humble parents at Blandford Forum, in Dorset, in 1818. His father was a house-painter, and greatly given to pothouse pleasures. Indeed, one of Stevens's earliest works was rescued from a public-house, where his father had left it in settlement of a drink score. Young Stevens soon left the local school of Blandford Forum, and the helping of his father in the house-painting trade, for, under the patronage of the Hon. and Rev. Samuel Best, a neighbouring clergyman, who had seen some of Stevens's drawings, he was sent to Italy. At Naples he copied the works of Andrea del Sarto, and studied hard the examples of other schools, tramping his way to Rome, and so on to Florence, where he lived and worked for three years. He studied ornament at Milan under Albertolli, and was employed as an assistant by Thorwaldsen, the Danish sculptor. In 1844 we find him living again in London, poor enough and without friends. He suffered much misery, and at length accepted an engagement at Somerset House in the School of Design at a salary of £3 a week. This engagement he gave up in two years, and by slow degrees he got a little original work to do. Sir Robert Peel gave him a commission, and he worked for Cockerell at the Fitzwilliam Museum. He painted some panels at Liverpool, and designed a railway carriage for the King of Denmark. The gates for the Geological Museum were designed by him, but never carried out. Messrs. Hoole, of Sheffield, engaged Stevens to design some stoves for them, and the works executed from his hand were foremost in merit at the Great Exhibition of 1851. Six years later he was engaged in the National Competition for the Wellington Monument, which offered Stevens the first opportunity in which he could display all his powers of composition. Eight months he worked early and late at this design, for which one of the five prizes of £100 was awarded him. The commission was eventually placed in his hands, after a model of the arch of St. Paul's Cathedral had been applied to all the premiated designs, his being the only composition found at all suitable. The sad story of the execution of this masterpiece and its subsequent location is one of the most lamentable in the history of our art. The angel frieze here shown occurs along the main cornice of the monument, and the cruciform panels are situated in the soffit of the main arches. The originals of these belong to Messrs. H. W. and Ed. S. Atkin. Mr. Holford largely employed Stevens at Dorchester House, where the chimneypieces and other fittings were designed and executed by him. The grand little lions on the railing of the British Museum, designed for Smirke, the architect, are also his work. Mr. Bird, of the Autotype Company, has produced a fitting memorial book in which all these designs are brought together, and the volume should find its place in all the art libraries of the country. Some years ago Mr. Walter Armstrong, of South Kensington Museum, published a smaller work, "Alfred Stevens: a Biographical Study"; but it was necessarily incomplete as compared with the present folio, which we would advise all lovers of art to get a look at, both for the work it represents and the manner in which it sets it forth.

* Alfred Stevens and his Work. Being a collection of fifty seven autotypes, with a brief memoir and account of his principal works so far as they are known. By Hugh Stannus. London: The Autotype Company.

DESIGN FOR ST. LUKE'S CHURCH, WINNINGTON.

This was submitted in a kind of limited competition some months ago. The plan included a nave 35ft. wide, with aisles somewhat narrow, but not used exclusively as passages. The arrangement shown at the east end of the nave was intended to form a transition from the nave to a chancel of an ordinary width, and at the same time to give light over the pulpit, and to form a strong abutment for the nave arches. The tower (to be built hereafter) was placed at the end of an aisle, rather than in front of the nave, to allow of a future extension of the church westward. The result of the competition does not appear to have been announced.

SKETCHING ABOUT IN SOMERSET AND DEVON. BY J. NICHOLSON JOHNSTON, A.R.I.B.A.

Muchelney Abbey.—One of the numerous ecclesiastical buildings to be found in Somerset which have degenerated into farmhouses. The original abbey was founded by Athelstan, 930. In an orchard adjoining, the foundations of the ancient structure may easily be traced. It stands surrounded by fine trees in a flat moorland country two miles south from Langport. Tradition says Athelstan, King of the West Saxons, suspecting his brother Edwin of treachery, caused him to be sent in an open boat, with only one attendant, into the stormy English Channel, where he perished. Repenting of this cruel action, he shut himself up in a cell at Langport for seven years, and as an atonement for that crime founded, in the adjacent village of Muchelney, an abbey of Benedictine monks, which he dedicated to the honour of St. Peter and St. Paul. *Parsonage House, Stoke-sub-Hamdon.*—This is a very old manor-house of various dates, the earliest part 15th century, situated in Stoke-sub-Hamdon, a village near Yeovil, nestling under the historic hill of that name whence the famous Ham stone is drawn. The chantry-house at Stoke was originally erected about 1304, when the chantry was founded. Very little remains of the earlier buildings. The house which now exists probably dates from Henry VII. The chantry precin are entered through a fine Tudor gateway. hall, with a good 15th century collar-be roof, is on the ground floor on the no side of the entrance. In the east wall the room supposed to be the kitchen a handsome aumbry or cupboard. The li gabled room with the bell-cote is supposed have been a chapel; but it runs north and sou and there would be no occasion for a chapel w the chantry close at hand. The part of buildings which faces the street has in gr measure been rebuilt since the reign of He VII. On the right of the big archway i quaint sundial in the gable of the hall buildi I went into one room on the right of the ho entrance from the street—a charmingly-panell low-ceiled room; the top panels enriched w carving, all of good oak. It was painted grained a light satinwood! The occupier s the dark oak made it so gloomy. There wa modern register grate—the occupier said the open grate smoked! *Abbey Farm, Pres* situated two miles west of Yeovil.—The earl part dates from latter half of the 14th centu A fine octagonal chimney, with open work at top, is preserved. This is the kitchen chimn and the fireplace originally extended right acr the width of the kitchen; now they have limi it somewhat, and built off a small cupbo (almost a room) each side. The barn, wh stands at right angles to the mansion, is a specimen of 15th century. The roof is original one of Spanish chestnut, in good c dition. The principal entrance has a b projection, and is of ornamental appearan The last sketch is from Dartmouth, taken w on a visit last summer, and shows the quaint houses in Foss-street.

HOUSE, KEMNAL WOOD, KENT.

This house—"The Nizels"—stands in a w wooded site near Chislehurst in Kent. Extern the walls are faced with red bricks from Dunton-green Works, the half-timbering in gables, &c., being backed up with brickwork the panels rendered with cement. The roofs covered with pressed brown Broseley tiles. staircase is of oak, as are several of the specia designed chimneypieces and over mantels. ceilings of the reception-rooms are divided i panels with wooden moulded ribs, the fl being of oak parquet. Mr. Julius Sax fitted electric bells. The work was carried out un the direction of the architect, Mr. W. Jos Buxton, A.R.I.B.A. Our illustration is ta from the drawing exhibited this year at Royal Academy.

THE GRAND HOTEL, NEWCASTLE-ON-TYNE.

We illustrated the exterior of this building October 16 last, and fully described it then. now give illustrations of the principal stairc and a corner in the assembly-room. The h staircase and the ground-floor fitments are al oak. The architects of the hotel are Mes Lamb, Armstrong, and Knowles, of 38, Gra ger-street West, Newcastle-on-Tyne, and contractors are Messrs. Middlemiss Bros.

Mr. S. J. Smith, C.E., Local Government Bo Inspector, held an inquiry at Cardiff on Friday w reference to an application which had been m by the corporation for permission to borrow £2 for the purposes of an infectious diseases hosp £21,450 for the extension of the Town Hall Municipal Buildings, £3,170 for the formation new street, and £2,500 for sewerage works.

A conference of representatives of the Me politan Local Governing Authorities is to be to consider the question of amending the Me politan Building Acts in connection with the C solidation Bill to be introduced next Session. Am the representatives are Mr. P. E. Pilditch, F.S and Mr. Herbert Sanders, Q.C., who will repre Kensington.

On Saturday afternoon, the students in the se classes in building construction of the Glasgow West of Scotland Technical College visited Kelvinside Brick Company's brickwork and H man kiln. They were conducted by Mr. Willi son, the manager, who explained the proces manufacture. Afterwards the students vis Temple Church, New Kilpatrick. Mr. Aitken, clerk of works, led the party over the building, explained many points of interest. Before lea each place, the lecturer, Mr. Charles Gour A.R.I.B.A., proposed a vote of thanks to gentlemen who had conducted them, which wa each case heartily responded to.



ELEVATION TO CRANBORNE ST

ROBERT BOYLE AND SON, LIMITED.

THE Directors of Robert Boyle and Son, Limited, ventilating engineers, London and Glasgow, have resolved to recommend a dividend of 12½ per cent., free of Income-tax, on the ordinarry and deferred shares of the Company for the year ending September last, after placing to the reserve fund one-sixth of the profits earned. This makes the sixth dividend, 12½ per cent. being paid for the last two years, and 12 per cent. for the previous years.

The year ended has been the most profitable since the formation of the Company. The Directors attribute this success, and their consequent ability to pay such a handsome dividend, to their constant study of the requirements of architects, and to the great and ever-increasing demand for the latest improved form of the self-acting air-pump ventilator, which, though much superior in design, make, and action, is now sold at 50 per cent. less than previous and inferior forms, constituting it not only the most efficient and ornamental, but the cheapest, ventilator in the market.

The Company have at present some very important contracts in hand and in prospect at home and abroad.

Mr. Robert Boyle has recently visited South Africa, and has established agencies in Cape Colony, the Transvaal, Natal, and Orange Free State, where large stocks of the ventilators have been purchased.

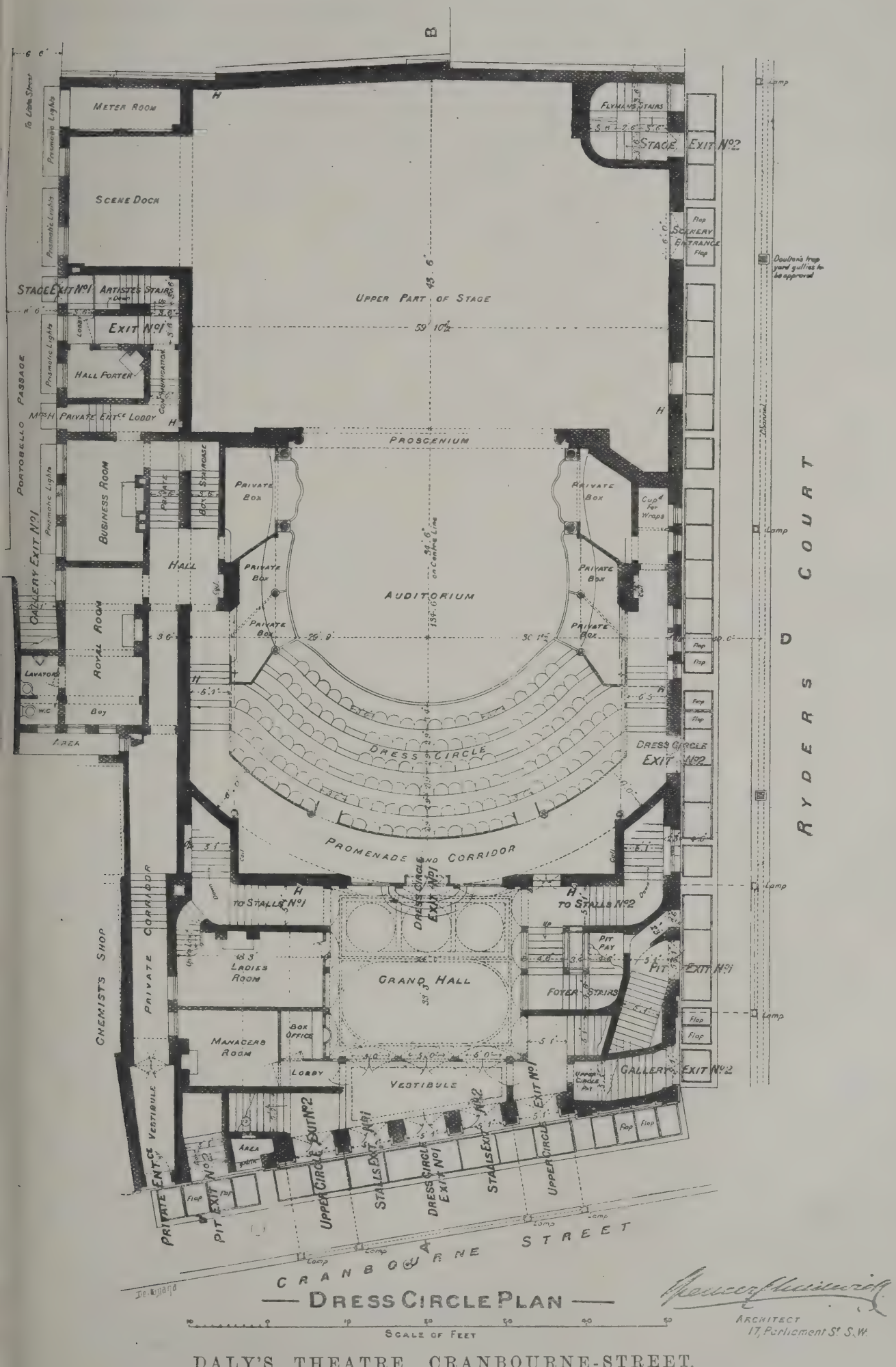
The Boyle system of ventilation has been applied to, and adopted for, amongst a large number of other public buildings in South Africa, the Houses of Parliament, the Castle and Town Hall, Cape Town; the High Court House, new Government buildings, and new Stock Exchange, Kimberley; the new Stock Exchange, Theatre, and Pavilion, Johannesburg; the new Club, Court House, and Hospital, Pretoria; the House of Parliament, new Town Hall, Municipal Buildings, and Railway Station, Pietermaritzburg; the Town Hall, Municipal Buildings, and new Railway Station, Durban; the Cathedral, Grahamstown; new Theatre and Opera House, and the drainage system, Port Elizabeth, &c., &c.

DALY'S THEATRE, CRANBOURNE-STREET.

LAST Friday week Miss Ada Rehan laid the corner stone of a theatre which is to be erected for Mr. Augustin Daly in Cranbourne-street by Mr. George Edwardes, and which will be a notable addition to the theatrical institutions of the Metropolis. The new theatre faces the main thoroughfare from Piccadilly to Covent Garden, having the principal entrance in Cranbourne-street, which leads to the stalls and dress-circle, an adjacent entrance leading to the upper circle, and the pit entrance being in a passage known as Ryder's-court. Mr. Spencer Chadwick has designed the building, and it is to be complete by the autumn of next year. The main entran hall measures 38ft. by 24ft., with foyer stairs the right and a ladies' room to the left, wi stairs to the stalls on either hand. The aud torium measures about 60ft. by 50ft. The sta is of similar dimensions. The domed foyer ov the entrance hall makes a great feature in t design, and the point from which the sight-lin radiate in the theatre are taken at a lower lev than usual, with a view of insuring a comma of the stage from all parts of the house. E trances are obtained on both sides of the buildi in Ryder's-court and in Portobello-passage, well as from the main front in Cranbourn street. The stairs are 4ft. 6in. and 5ft. wide all cases. The floor of the pit has a fall of o in twelve. The elevation is in the Renaissan style, and is to be executed in Ham Hill ston The contractor is Mr. Frank Kirk, of 19, Abin don-street, Westminster, S.W.

The reopening of Whaddon parish church, aft the restoration of the south aisle and roof, to place on Wednesday week.

The Queen has been pleased, by Warrant und her Majesty's Royal Sign Manual, to direct lette patent to be passed under the Seal appointed by t Treaty of Union to be kept and made use of place of the Great Seal of Scotland, granting Supplementary Charter to the Royal Scotti Academy of Painting, Sculpture, and Architectu



DRESS CIRCLE PLAN

SCALE OF FEET

ARCHITECT
17, Parliament St. S.W.

DALY'S THEATRE, CRANBOURNE-STREET.

WAYSIDE NOTES.

HE Society of Architects has opened its session with a most enthusiastic and enjoy- e burst of conviviality. Mr. W. Howard h-Smith's second term of office as president ms likely to be characterised by the same ial influences which so largely conduced to prosperity of the Society when he first occu- d the chair. He has the good fortune to be e to gather about him men of eminence in all lks of life, and it is evident from their sence, when his fellow-members rally around n, that the chiefs of British art—the illus- ous presidents of the principal art societies ave fully accorded to the Society over which . Seth-Smith presides, the fraternal recogni- n which the more antiquated of their own pro- sion churlishly refuse.

notice, by the way, though, that while the yal Institute of British Architects has hing but fire and brimstone for its younger l more energetic brother-society officially, its n leading members evidently wink at this, l hasten to gather round the festive board of Society at Mr. Seth-Smith's invitation. This most satisfactory. Quite the best speeches re made at the Society's Members' dinner on esday evening at the Holborn Restaurant by llows of the Institute. Mr. T. W. Connon's d-tempered but most complete exposure of fallacies in Mr. J. MacVicar Anderson's ent presidential address, was as clever as it s thoughtful and considerate, and Mr. Ernest y was not a whit behind in his neatly-put a for the recognition of the Fine Arts.

As a rule I never listen to after-dinner eches; but I must say I did on Tuesday, and rnt a good deal from some of them—from Sir mes Linton's eloquent and instructive history the progress so far of the effort to found the w Gallery of British Art, and from Mr. Wyke yliss's most admirable exposition of the ims and due position of architecture as a fine . That the society's own orator—whom can nean but its most genial past-president, Mr. bert Walker?—fully upheld his reputation, withstanding the high-water mark reached the speeches of the evening, goes without ing, and even the chairman of the Improve- nt Committee of that much-abused body, the ndon County Council, drew an appreciative l hearty cheer when he wished he had more ney, so that he might be kinder to architects.

Mr. Seth-Smith's opening address at the ening meeting on Wednesday afternoon at James's Hall was a thoughtful contribution to elucidation of the problems the Society has itself to solve, and will, I am sure, be read th interest by the whole profession. His appeal the support of the Architectural Association its new and admirable expansion was the best d most courteous reply that could be made to somewhat churlish conduct of the latter body, ich is, in a quite uncalled-for fashion, joining Institute in its opposition to the Incorpora- n which the Society of Architects is seeking. e conversazione at the rooms of the Royal stitute of Painters in Water Colours was, in way, as successful, and, of course, a much re numerously-attended gathering than the mer on Tuesday. Nothing that could be done the comfort of the guests had been omitted, d the company dispersed with the heartiest shes for the continued and largely increased cess of the Society of Architects and its esident.

There is no doubt that the membership of the ciety will very largely increase this year. in early, all that mean to—for two reasons. rst, you won't get in much longer for the very dest entrance fee now payable; and, next, at you may be in time to have a voice in the angements for the New Year, which I believe ll be of a somewhat ambitious character. The ciety has already received a Royal *exequatur* road. It is, I hear whispered, quite on the ds that equal honour may await it in 1892 rer home.

Mr. T. Mullet Ellis deserves to have gained der renown for his name in having called ention to the carbuncle on the top of Somerset use. His letter first called general attention the subject, and it only shows how we may jog along in a *laissez faire* spirit that no one was earlier in denouncing the eyesore. I am myself fairly wideawake in noting subjects fit for an architectural topic, but must confess to have frequently looked upon the unwelcome stranger, and that with no thoughts or sentiments out of the common, and no indignation swelling within me. I had altogether failed to remark the unsightliness of the intruder. Yet no sooner had your correspondent pointed out its shortcomings, than we all recognise the absence of the wedding garment. And now there is a pretty kettle of fish! The P.R.I.B.A. alludes to the subject, and the Institute passes a resolution condemning the erection of such a mass of iniquity in connection with the hallowed façades of Somerset House; while the lay press "catch on" the cry and hound down the offending structure. There is not a shadow of a doubt but that the mass of stock-brickwork is to be condemned, since it spoils a grand *coup d'œil*; and as fine prospects are not common objects of the Metropolis, this is the more to be regretted. I should like to see the offender removed, as no sort of dressing-up of the external elevations would make it fit for the company in which it has been placed. The ugliness reaches to the bone—or brick—in very truth in this case, therefore I fail to see how the authorities of the college could "ameliorate the unsightliness of the addition" on Professor Kerr's theory; such attempts being certain to prove failures, and only likely to demonstrate that architecture is not to be produced by masks. It were better to leave the building as a monument to mark the zenith of an Any-style-you-like-and-none-if-you-don't-want-it era in London architectural design. It will form a grand object lesson the next time that Mr. Blashill, or any other architect — say Mr. Stephen Salter, F.R.I.B.A.—lectures upon the municipal control of architecture.

In Mr. Seth-Smith's presidential address to the Society of Architects, allusion was made to the necessity for greater uniformity in style in cities and towns, and I wish that such a desirable end could be attained, or, at least, that control could be had over those offending spirits who will put up elevations which are intrinsically ugly and out of harmony with any and every style of design. It is not plainness or baldness that I now refer to; but "the indulgence in quaint personal conceits or idiosyncrasies, not necessarily beautiful because novel, instead of the manly effort to curb mere selfish Quixoticisms, and to produce results which will be pleasing to the refined taste of others because in harmony with what is beautiful." This is a vice that is possible of eradication, and one that will grow less as the education of architects becomes greater. The want of uniformity in style is far more difficult to deal with, because it is to be referred to the age, which is restless, unsettled, and constantly desiring change in all matters, whether domestic, political, or religious.

Mr. Seth-Smith said much about Registration that deserves weighty consideration, and on the subject of "A, a P, or an A"—to which one seems to be ever brought back—his address contained a remarkable allusion to those pleasures of science as well as of art, that should be the portion of the Architect. "Can we imagine," says the President of the Society, "that the joy experienced by the Architect of Nature is confined to the beautiful forms and colours with which He has dressed physical creation?" This is using the highest imagery to press the acceptance of a doctrine that many of us will readily receive. There is pleasure in the solution of constructional problems—which I suppose the "A., a P. or an A." gentleman, sending the same to a friendly engineer or firm of ironmasters, do not feel—and there is pleasure in the solution of purely scientific questions dealing with the suitability of a building to its particular end, even if only in the matter of those drain-pipes, &c., about which the renowned *Times* correspondents were so scornful.

After what seems rather a considerable delay, the proposed municipal lodging-house scheme has been brought into another stage of development. The County Council have decided to accept the tender of £14,300 of Messrs. Holloway Bros., and to proceed with the execution of Messrs. Gibson and Russell's design. The building will be in Parker-street, Drury-lane; and if the lodgers of the neighbourhood are able to appreciate the cleanliness and order that will be conspicuous features in the establishment, the success of the venture is assured. The original estimate having been about £10,000, it would have been a cause for surprise if no councillor had attempted to prevent the increased expenditure; and as a fact the motion so to do was duly forthcoming. Being ineffectual, however, as it should have been, the committee's recommendation was agreed to, and the architects will not be put to that wearisome process of scraping down the building to reduce the cost, which always puts the designer out of conceit with his work.

The aphorisms of Mr. W. H. Bidlake, as set forth in his paper on "Pitfalls on Commencing Practice" ought to be printed in numbered verse form, mounted on a card, and hung in the office of the verdant practitioner, thus:—

1. Get a client.
2. You must put up a house for somebody before anyone will trust you to put up a house.

* * * * *

21. Endorse any verbal agreement by letter, and keep a copy of it.

* * * * *

91. Be sure of your foundations.

And so on. The maxims are all excellent.

The past two weeks have seen many scientific societies commencing work for another session. Among them is the Institution of Civil Engineers. In the presidential address of Mr. George Berkley were many topics of interest to architects. The address was one of the best of the year, and was arranged in that historical manner that never fails to prove attractive.

The change of status of the Association of Sanitary Inspectors, which has been long impending, is at length an accomplished fact. In the inaugural address opening the new session, on Saturday, Mr. Alexander attributed the desire for this change to the conviction the members had arrived at, that the best chance for future sanitary progress lies in the education of the younger members of the community. With this in view, the associated inspectors have accepted the responsibility (without emolument) to establish lectures, classrooms, and examinations, to award prizes and grant certificates, raising money, holding estates, and receiving gifts of money or property for the purpose. The society, under its new name of "The Sanitary Inspectors' Association," has inaugurated its new institution by passing two resolutions of public importance. The first called upon the council immediately to consider what action could be taken by the association to put an end to, or to diminish the practice of, building back-to-back houses, which every sanitary canon utterly condemns, and the second suggested that the Education Department should be memorialised in favour of making hygiene one of the class subjects in elementary schools. GOTH.

CHIPS.

At Broadway Church, near Chesham, a reredos, altar, super-altar, and retable have been erected as a memorial. They are 13th century in style, executed in English oak. Mr. Charles H. Rew, of Great Berkhampstead, was the architect, and Messrs. Harry Hems and Sons, of Exeter, carried out the works.

The new council chamber at Leith was formally opened on Monday. It gives double the accommodation of the former room, which occupied a portion of the present site, the new meeting-room being 35ft. by 22ft., and adjoining are committee and reading rooms. Mr. James Simpson was the architect.

At the adjourned hearing at Newmarket of the charges under the Bankruptcy Acts against Francis Johnson, builder, Fordham, he was committed for trial to the Assizes, the charge against his brother, James Johnson, of aiding and abetting him in the concealment of property being dismissed.

On Wednesday week two pumping engines, erected at the Cosford station, near Shiffnal, of the Wolverhampton Waterworks, were formally started. The engines were built by Messrs. Hathorn, Davey, and Co., of Leeds. One of the engines, of 150H.P., is erected for raising the water from the artesian well to the surface; the second engine, of like construction, is provided for pumping the water to the Tettenhall reservoir. The engine-house was erected by Mr. H. Willcock, of Wolverhampton.

BUILDERS' BENEVOLENT INSTITUTION.

ANNUAL DINNER.

THE forty-fourth anniversary dinner, in aid of the funds of this Institution, was held on Thursday, the 5th inst., at Carpenters' Hall, London Wall. Mr. B. E. Nightingale, the President of the Institution, occupied the chair.

The Chairman, in proposing the toast of the evening, "Success to the Builders' Benevolent Institution," said this charity, which had been founded for the purpose of helping those who had been less fortunate than the gentlemen he saw around him, had been in existence some 44 years. During that time more than 250 persons had been assisted. At present there were 54 pensioners, and several people were waiting the opportunity of receiving their benevolence. The work of assisting their less fortunate brethren was one which should commend itself to the liberality and generous sympathy of all those connected with the trade. They must all know many men who had "gone under" through no fault of their own, but by stress of circumstances over which they had no control. It was sufficient to know that men holding at one time good positions had left their widows and families unprovided for, and that those who subscribed to this charity were doing their best to help such unfortunate persons. This Institution depended entirely on the liberality of the members of the building and allied trades, and was therefore unlike many charities which could appeal to all classes of the community. The chairman concluded his appeal to the sympathy of his hearers, by coupling the toast with the name of Mr. George Plunkett, J.P., the treasurer. The toast having been duly honoured,

Mr. Plucknett replied on behalf of the Institution, and said that this year the lamentable strike would influence the receipts of the charity. At the same time, he had such confidence in the builders of London, that he did not believe they would allow the Institution to dwindle for want of funds. It had now been in existence for many years, and had always managed to meet its requirements. The committee would like to see the income increased, as they were only able to provide relief at present for one out of the four applicants, and thus three old people, who might not live long enough to benefit by the Institution, had to stand over for some time.

The Chairman also gave "The Worshipful Company of Carpenters," referring to their kindness in giving the use of their fine hall, and subscribing largely to the funds of the charity.

Mr. B. J. Jacob (Warden of the Carpenters' Company) replied, and added that his only regret at these gatherings was that the subscriptions had not amounted to four figures.

Mr. J. W. Hobbs proposed "the Chairman," congratulating Mr. Nightingale on the manner in which he had fulfilled his duties. The trade had been passing through a most serious struggle which had resulted in heavy loss both to employers and employed, and it required a brave man, with such a fight looming in the distance, to undertake the presidential duties. The toast was received with acclamation, and the chairman made a suitable reply.

In the course of the evening subscriptions and donations to the amount of £836 were announced, of which sum £576 appeared in the president's list, including his own donation of £100.

SUGGESTIONS FOR STAINED-GLASS WINDOWS.

A VERY good selection of designs for stained-glass windows for houses and churches, executed at St. Peter's Works, Gaythorn, Manchester, by Mr. W. G. Sutherland, stained glass and decorative artist, of 15, St. Ann-street, of that city, is before us. The designs selected are representative of the character and prices of leaded lights and stained glass as executed at the works, and not as conveying examples for actual buildings. Mr. Sutherland makes special designs to suit the aspect and purpose of any work, and is prepared to execute architect's own designs. Business premises, private houses, and public edifices are frequently adorned by stained glass, either for purposes of advertisement or decoration. Some of the designs show clever adaptations for windows, and devices from quite plain square leaded lights to those of more ornamental character having devices and figure-subject centres. Admirable patterns for plain leadwork are shown on designs Nos. 5, 7, 10, 12, 13, 21, 25, 27, and 28. The panel centres and borders introduced in No. 31 for square lights make very effective windows. The plain leaded lights in sheet glass are from 1s. 3d. to about 3s. 3d. per foot, exclusive of marginal lines. Several designs suitable for hall and staircase windows, for buffets and restaurants, panel lights, oblong, circular-headed, and square windows are given in Nos. 49, 50, 53, 54, 56, 61, 62, 64, 74, 77, 78, 79, 80, 82, 93, 94. Decorative panels of figure subjects representing the Seasons, "The Lady of Shallot," and other poetical subjects are given. The plain geometrical, symbolical, and figure designs for church windows, which form a second part of Mr. Sunderland's book, are also worthy of the attention of architects. These designs are suitable for single lights, traceried windows of different forms, and contain several designs in correct taste, and of ecclesiastical character. The price list appended gives the price per foot of plain leaded lights. Of course, the price of a window is considerably reduced by having a proportion of the surface surrounding the centre in plain work. Mr. Sutherland's designs will at least afford architects some valuable assistance in the preparation of their own designs, and in the arrangement of the lights and margins, while the examples illustrated will be of service in specifying.

PRICES.—XXII.*

(All Prices Include Profit).

JOINER (*continued*).

		£	s.	d.
Doors: deal, four-panel—				
2½in. square framed	per foot super.	0	1	3
Ditto bead butt one side	ditto	0	1	4
Ditto ditto two sides	ditto	0	1	5
Ditto ditto flush one side	ditto	0	1	5
Ditto ditto two sides	ditto	0	1	7
Ditto moulded one side	ditto	0	1	4½
Ditto ditto two sides	ditto	0	1	6
Ditto ditto one side bolection	ditto	0	1	7
Ditto stop-chamfered one side, and including plain stops	ditto	0	1	7
Ditto ditto two sides	ditto	0	1	11
Ditto raised panels one side	ditto	0	1	9
Ditto ditto two sides	ditto	0	2	3
Add for top panels out for glass, not including beads to keep glass in	ditto	0	0	2
Add if hung folding	ditto	0	0	2
Add for thick panels to outer doors	ditto	0	0	2
Add if top panels are sashed in one	ditto	0	0	4
Ditto ditto in small squares	ditto	0	0	6

When joiners' work can be stop-chamfered by machinery, and quadrant stops will do, the price can be reduced by half the difference beyond square framed.

Doors: deal, six-panel—				
1½in. squared framed	per foot super.	0	0	11
Ditto bead butt one side	ditto	0	1	0
Ditto ditto two ditto	ditto	0	1	1
Ditto ditto flush one side	ditto	0	1	1
Ditto ditto two ditto	ditto	0	1	3
Ditto moulded one side	ditto	0	1	0
Ditto ditto two ditto	ditto	0	1	1
Ditto ditto one side bolection	ditto	0	1	2
Ditto stop-chamfered one side, plain stops	ditto	0	1	3
Ditto ditto two sides	ditto	0	1	7
Ditto raised panels one side	ditto	0	1	5
Ditto ditto two ditto	ditto	0	1	11
Add if top panels are left out for glass, and not including beads to keep glass in	ditto	0	0	1
Add if hung folding	ditto	0	0	1
Ditto for thick panels to outer doors	ditto	0	0	1
Ditto if top panels are sashed in one	ditto	0	0	4
Ditto ditto if small squares	ditto	0	0	6
2in. square framed	ditto	0	1	0
Ditto bead butt one side	ditto	0	1	1
Ditto ditto two sides	ditto	0	1	2
Ditto ditto flush one side	ditto	0	1	2
Ditto ditto two sides	ditto	0	1	4
Ditto moulded one side	ditto	0	1	1
Ditto ditto two sides	ditto	0	1	2
Ditto ditto and one side bolection	ditto	0	1	3
Ditto stop-chamfered one side, plain stops only	ditto	0	1	4
Ditto ditto two sides	ditto	0	1	8
Ditto raised panels one side	ditto	0	1	7
Ditto ditto two sides	ditto	0	2	2
Add if top panels are left out for glass and not including beads to keep glass in	ditto	0	0	1
Add if hung folding	ditto	0	0	1
Add for thick panels to outer doors	ditto	0	0	1½
Add if top panels are sashed in one	ditto	0	0	4
Add ditto in small squares	ditto	0	0	6
2½in. square framed	ditto	0	1	2
Ditto bead butt one side	ditto	0	1	3
Ditto ditto two ditto	ditto	0	1	4
Ditto ditto flush one side	ditto	0	1	4
Ditto ditto two ditto	ditto	0	1	6
2½in. bead butt moulded one side	per foot super.	0		
Ditto ditto two ditto	ditto	0		
Ditto ditto (bolection one side)	ditto	0		
Ditto stop-chamfered one side, plain stops	ditto	0		
Ditto ditto ditto two sides	ditto	0		
Ditto raised panels one side	ditto	0		
Ditto ditto two sides	ditto	0		
Add if top panels are left out for glass, and not including beads to keep glass in	ditto	0		
Add if hung folding	ditto	0		
Add for thick panels to outer doors	ditto	0		
Add if top panels are sashed in one	ditto	0		
Ditto ditto in small squares	ditto	0		
2½in. square framed	ditto	0		
Ditto bead butt one side	ditto	0		
Ditto ditto two ditto	ditto	0		
Ditto ditto flush one side	ditto	0		
Ditto ditto two ditto	ditto	0		
Ditto moulded one side	ditto	0		
Ditto ditto two sides	ditto	0		
Ditto (bolection moulded)	ditto	0		
Ditto stop-chamfered one side plain stops	ditto	0		
Ditto ditto two sides	ditto	0		
Ditto raised panels one side	ditto	0		
Ditto ditto two sides	ditto	0		
Add if top panels are left out for glass, and not including beads to keep glass in	ditto	0		
Add if hung folding	ditto	0		
Add for thick panels to outer doors	ditto	0		
Add if top panels are sashed in one	ditto	0		
Ditto in small squares	ditto	0		

NOTE.—Doors with segment heads should be priced at 25 per cent. beyond square heads

Ditto elliptic heads 75 per cent.

Ditto semi-circular heads 50 per cent.

Ditto circular on plan to flat sweep twice the price of ordinary

Ditto quick, three times

Doors, flush panels for covering with baize, &c.—

1½in. two panel	flush one side	per foot super.	0	
ditto	ditto two ditto	ditto	0	
2in. ditto	ditto one ditto	ditto	0	
ditto	ditto two ditto	ditto	0	
2½in. ditto	ditto one ditto	ditto	0	
ditto	ditto two ditto	ditto	0	
1½in. four panel	ditto one ditto	ditto	0	
ditto	ditto two ditto	ditto	0	
2in. ditto	ditto one ditto	ditto	0	
ditto	ditto two ditto	ditto	0	
2½in. ditto	ditto one ditto	ditto	0	
ditto	ditto two ditto	ditto	0	
1½in. six panel	ditto one ditto	ditto	0	
ditto	ditto two ditto	ditto	0	
2in. ditto	ditto one ditto	ditto	0	
ditto	ditto two ditto	ditto	0	
2½in. ditto	ditto one ditto	ditto	0	
ditto	ditto two ditto	ditto	0	
Covering the above doors with good-quality baize, including brown-paper ground, both sides and edges measured			0	
Ditto ditto with superfine cloth			0	
Panels framed with brass beads		per foot run	0	
Ditto ditto ditto nails		ditto	0	

CAVITY WALLS.

THE value of a hollow wall during da rainy weather is not recognised as it s be by builders of our dwellings. Outer of houses in the suburbs of the metropol built as thin as possible, partly to save brick and also to give as much room as possib ternally. A few inches sometimes are o portance. Probably for these reasons a c wall is not entertained. But the loss of re trifling. For example, a 11in. cavity wa be built instead of a 9in. solid wall, making a difference of 2in., and if the two thicknes four-and-a-half brick are well tied togeth cramps, the work may be regarded quite as stantial as a solid wall, and completely pervious to moisture. Still, the solid 9in has a look of compactness and solidity ab which goes in its favour. As a matter of however, a properly cramped 11in. or 12in. h wall has equal strength, and if the 4½in. thicknesses are well bonded an good material the result is superior there is more base and lateral resist One of the objections to hollow walls of 4½in. thickness is that the inner thickness c carry heavy floors and timbers; but for all poses where 12in. walls are built, the obje is futile. Of course, for buildings of thr four stories the outer walls would be of work—that is, a 9in. outer skin of brick, a c of 2½in., and an inner brick thickness of 4 or, if preferred, the whole-brick thickness m placed inside, and the half-brick outside. T who have any experience in hollow brick know quite well the value of the objections against walls of this description. Much de

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) iron cramps used, which should be of ht or cast iron, dipped, when hot, in tar, e placed about 3ft. apart in the courses, very three courses high. The cramps are . at the ends, and should have a bend in ntre. Care must also be observed by in- ing strips of lead over all door and window that occupy the cavity.

COMPETITIONS.

TERSEA.—A limited competition is being t Battersea for a new town hall, and Mr. m Young, F.R.I.B.A., has been appointed or. Twenty-four architects were invited, welve designs have been sent in. All awings, which have been marked alpha- lly, are strictly under lock and key, not he members of the committee having as yet hem. The referee's award will be brought the meeting on Monday next, and after it en confirmed, the plans will be shown to blic. The cost stipulated is £25,000. It e likely, however, that all the requirements e conditions will be obtained for that at.

RTON-UNDER-CANNOCK.—The Norton-under- ock District School Board have adopted the ns submitted by Mr. Geo. H. Cox, architect, rmingham, for the proposed new schools at nhills.

FORD.—No less than 134 designs have been red for the municipal buildings at Oxford, at the referee, Mr. T. E. Collcutt, has no task imposed upon him in the work of ion. As a matter of course, many of designs are of a trivial character; we have it from a reliable source some few are of exceptional merit in e treatment of Late Gothic, well suited to a of historical associations like Oxford. Five ns will be chosen for a final contest, but bly none of the present drawings will be ited.

CHITECTURAL & ARCHÆOLOGICAL SOCIETIES.

VERPOOL ARCHITECTURAL ASSOCIATION.—On ay evening last nearly fifty architects' tants connected with the several firms in the partook of their second annual dinner at the on Restaurant, Lord-street, Mr. T. W. gh being in the chair. After a vote of thanks e chairman had been carried with acclama- a most enjoyable evening was brought to a by the singing of "Auld Lang Syne." The ramme was specially designed by Mr. T. W. gh, the president, and on the title-page a of Mernigerode Rathaus was cleverly eated within an architectural border, in- ed with emblems of the fine art.

EFFIELD SOCIETY OF ARCHITECTS AND SUR- RS.—The usual monthly meeting was held e School of Art on Tuesday night, the 10th , Mr. Innocent, the president, being in the r. The following gentlemen were nomi- d for the studentship of the society: Messrs. . Innocent, Frank Wilson, Oscar Bromley, k Greaves, W. A. Hall, and W. Woofin- A paper was read by Mr. E. M. Gibbs, -president, on "Architectural Education in field." A discussion took place, and a ty vote of thanks was awarded to Mr. Gibbs is paper.

CHIPS.

a Saturday last new branch stores for the nsbury Industrial Society were opened at nton, Bradford. They consist of stores for ery, drapery, and flour, with warehousing and it's house attached, and have been erected from gns prepared by Mr. Herbert Hodgson, .I.B.A., of Bradford, by local contractors, at a of about £1,000.

r. Henry Richards, C.E., member of the In- orated Association of Municipal and County ineers, and district surveyor of highways for the shes of Barnes and Mortlake, was, on the 4th nt, elected a Fellow of the Surveyors' Insti- n.

ne eighth session of the Dundee Institute of itecture, Science, and Art was opened on lnesday week in the hall of Y.M.C.A., Dundee, Professor G. Baldwin Brown, M.A., Edinburgh, delivered a lecture on "Some Notes on the wth of Cities." Mr. Charles Ower, C.E., the ident, occupied the chair.

Building Intelligence.

ALNMOUTH.—A new Wesleyan chapel was opened on Tuesday. It is in the Early English style, and is built of stone from Spy-law quarry, with overhanging roofs covered with red tiles. At the north side, and divided by a movable partition, is the schoolroom, which can be used as part of the chapel during the holiday season. A large classroom is also provided. The heating is carried out by Messrs. Emley and Son, of Newcastle. Messrs. J. Wilson and Sons, of Lesbury and Alnmouth have been the contractors for the new buildings, which have been carried out from designs by Mr. J. W. Taylor, of Newcastle. The building seats 310 persons.

CITY-ROAD, N.—The Wesleyan Chapel, City-road, was reopened on the 5th inst., after restoration, at a cost of £13,000, carried out under the direction of Mr. Elijah Hoole. The chapel is the metropolitan church of the Methodist Communion, the foundation stone having been laid by Wesley in 1777. The style is Roman Doric, and the structural changes now made harmonise with the original design. The plan is a simple square with a short eastern apse of Portland stone, the walls of the nave being of brick. In the apse the legends on the reredos have been removed, and in the place of the Decalogue and the Lord's Prayer there now appear the Apostles' Creed and the summary of the Commandments contained in St. Matthew's Gospel. The ceiling of the apse, the spandrels, and soffit of arch are of Roman mosaic. The ornate high reliefs which occurred above the reredos have been reproduced in alabaster. Within the apse a chair which belonged to John Wesley is now placed for the use of the celebrant. In the choir stands an organ, newly erected by Messrs. Brindley and Foster, of Sheffield. The choir stands on a raised floor of Venetian mosaic, with marble steps. In front of the pulpit there are a new oaken lectern and sedilia. The woodwork of the chapel is of unwaxed oak, the bench ends being carved in open panels, which contain the arms of the Wesley family. The new memorial, Mr. Adams Acton's bronze statue, is now in its place in the forecourt.

DROITWICH. — The Worcester Brine Baths Hotel, Droitwich, was opened on Wednesday last. The building is in the old half-timbered style, the materials used being brick, timber, and rough-cast, at a cost of £15,000. It is four stories high. In the centre of the hotel is the main entrance, with a *porte cochère*. On passing through the doorway, the visitor walks into a spacious hall, which is intersected at right angles by a lofty, well-lighted corridor 10ft. wide. On the right is the office, and on the left the manager's room, and before him is the main staircase. The coffee-room is 42ft. by 30ft., the ceiling being divided into six panels, which are enriched by cornices 3ft. 6in. in girth, which are picked out in eight colours, and the enrichments are gilded. The drawing-room, 40ft. by 20ft., is in two sections, being divided by an arch springing from two pilasters. Leading from this room is the ladies' writing-room. The total number of bedrooms is 96, and on the ground-floor, first floor, and second floor are six suites of rooms. The architect is Mr. John Robert Nichols, M.S.A., of 59, Colmore-row, Birmingham, and the contractor Mr. C. A. Horton, of Brierley Hill. The lifts are by Messrs. Waygood and Co., London, and the sanitary arrangements by Messrs. Doulton and Co., London.

PRESTON.—The foundation stone of St. Matthew's day-school was laid last week. On the ground floor is infants' room, 87ft. by 57ft. and 15ft. from floor to ceiling. On the west side are three large classrooms, running the length of the main room. The general arrangement of the ground floor is repeated on the first floor. This will be used by the girls, the height from floor to ceiling being 16ft. The present schools adjoining will be used exclusively for boys. All floors will be laid in white boards, and are to be constructed sound-proof. The walls will be plastered throughout, above a cemented dado. The architects are Messrs. Myres, Veevers, and Myres, of Preston and Westminster, and the works are being carried out under the supervision of Mr. T. Harrison Myres, by the local contractors; Mr. John Sergeant acting as clerk of works. The cost will be £3,000.

RAINHILL.—The Evans Memorial buildings and Congregational Church at the Holt, Rainhill, near Liverpool, were opened on Thursday in last week. The buildings have been erected at the sole cost of Miss Ruth Evans, in memory of her brother, to whose memory also Miss Evans is erecting church and school buildings at Haydock, and school buildings at Ashton-in-Makerfield, the total cost of the combined schemes, including land, being about £25,000. The whole of the buildings are approaching completion from the designs of Mr. Thomas Cubbon, of Birkenhead, the contractors being Messrs. Hughes and Stirling, of Liverpool and Bootle. The principal portion of the Holt buildings is the church, seating about 650, having organ-chamber, vestry, and cloak-room at the rear. The style is Late Gothic, the plan of the church being cruciform, having chancel and transepts. The clerestory is carried upon moulded arches and octagon columns of white Cefn stone, as are also chancel, transept, and organ-chamber arches. The buildings are faced externally with local red sandstone, and all the internal woodwork is of pitch-pine. The traceried windows are filled in with enriched lead-lights. A tower, with spire 120ft. in height, occupies the south-west angle of the main building. The Sunday schools consist of a large assembly hall, accommodating 300 children, and four classrooms, each for 18 scholars. There is also a swimming-bath, 50ft. by 23ft., having the sides lined with white enamelled bricks, and the bottom laid with white tiles, on a concrete bed. There are also a gymasium, clubhouse, and cocoa-rooms, with two reading-rooms on the first floor, and a residence for manager. The contractors for the gates and railings were Messrs. M'Farlane, of Glasgow. The cost of these buildings is over £10,000.

SUDBOROUGH.—The parish church of All Saints was opened on Friday, after restoration. The work carried out has been the entire re-roofing in oak of the nave, the south transept, and south aisle; the re-slating and underpinning of the north transept; the rebuilding of the south-east angle of south transept, and the replacement of one of the four pillars of the nave. The tower has also been re-roofed, the battlements raised, the pinnacles (of late date) renewed, and the walls repaired. The church has been refloored with wood blocks, and made level with the stone-work of the nave and aisles, and carved oak seats placed in the nave. In the chancel the flooring has been enriched by the introduction of stone and marble in place of tiles, and the prayer-desks and choir-seats are also of oak to correspond with those in the body of the church. The church is lighted with lamps from the design of Mr. J. C. Traylen, of Stamford, the architect of the whole of the work. The contractors for the restoration were Messrs. E. Roberts and Son, of Weedon.

WEST DULWICH.—The first section of the Church of All Saints in Rosendale-road was consecrated on All Saints' Eve. The church is being built in sections from designs by Mr. G. H. Fellowes-Prynne, of Torrington-square, W.C. The first contract included the foundations at the east end, which were carried out by Messrs. Kynoch and Co. The second contract, just executed by Messrs. J. and C. Bowyer, of Upper Norwood, includes crypt, chancel, chapel, vestries, north and south transepts, and four out of seven bays of the nave, the flèche and tower being, for want of funds, temporarily cut off at roof level. The site has a fall of 28ft. from west to east. The nave floor taking the western level, space is obtained for a spacious crypt for parochial and heating purposes. The church consists of a lofty nave 60ft. high and 40ft. wide and 128ft. in length, divided into seven double arched bays, the piers being built of red brick and stone. Panels for decoration are formed over lower arches, and a clerestory in spandrels above. The present section will accommodate about 1,000 persons.

St. Swithin's parish church, Walcot, Bath, was reopened, after restoration at a cost of £3,000, on Monday.

The foundation-stone of the public library to be built between Castle-street and Abbey-street, Carlisle, will be laid in January next. There will be accommodation for lending and reference libraries, reading-rooms, museum, lectures, and classes, picture gallery, and science and art school. The contracts have been obtained principally by Carlisle tradesmen, and the cost, with fittings, will amount to nearly £14,000. The architect is Mr. W. Howard Smith, the city surveyor of Carlisle.

Engineering Notes.

BRIGHTON.—The ceremony of setting the first pile of a new pier and marine palace for Brighton was performed on Saturday. The site of the new structure is opposite the Old Steyne. The Brighton Marine Palace and Pier Company have acquired the old Chain Pier, which is about 200 yards to the eastward, and this will be removed by the time the new pier is completed, about 18 months hence. The palace and the pier will be constructed from the designs of Mr. R. St. George Moore, M.I.C.E., and the contract is let to Mr. A. Woodhouse, of Newport, Mon. The pier will be 1,700ft. long, or about 500ft. longer than the present West Pier, and the palace at the end, capable of seating 1,500, will be utilised for high-class concerts and other performances. Dining and grill rooms, smoking and reading rooms will be erected. The total area of the pier-head, on which the palace will be erected, will be upwards of 48,000sq.ft., and surrounding the palace there will be a promenade, with sheltered seats. At the extreme end a landing stage will enable stamers to land passengers at all states of the tide.

THE INSTITUTION OF CIVIL ENGINEERS.—The president, Mr. George Berkley, delivered the opening address of the season on Tuesday night. The president traced successively the development of the engineering art in the Stone, the Bronze, and the Iron ages, and then referred to the colossal works of the Romans. In regard to the latter works, particulars were given of the most notable intra-mural aqueducts of ancient Rome, and a comparison was drawn between the water supply so furnished and that of the modern city, from which it appeared that the present population of Rome enjoyed a supply amounting to about 51 million of gallons, or 137 gallons per head for a total of 372,000 inhabitants. Reverting to the chronological sequence of his subject, the president showed that the most important factor in the development of engineering was the discovery by Watt of the expansive action of steam. As an instance of the influence of the general adoption of the steam-engine on all classes of engineering work, reference was made to the typical modern steam-vessel, which necessitated for its accommodation large docks, demanding in turn elaborate mechanical contrivances to insure their utilisation. Thus the docks of Liverpool and Birkenhead possessed a quay-space of upwards of 33 miles, and a frontage to the Mersey of nearly 12 miles. Closely connected with works of dock-engineering was the revival of inland navigation, as instanced in the Ship Canals now being constructed in various parts of the world. The president then gave some particulars of the present state of engineering in America, dwelling particularly upon the production of iron. The present output of pig iron in the United States was 10,000,000 tons, or 2,000,000 tons greater than that of the United Kingdom. The whole of this production being utilised in the country resulted in a consumption of 300lb. of iron per head of population, exceeding that occurring in any other part of the world. The president gave statistics of the railways and bridges of the United States, in the latter case selecting for illustration four works typical of different modes of construction—namely, the St. Louis Bridge of the Mississippi, the Brooklyn Suspension Bridge and the Washington Bridge, both at New York, and the cantilever bridge carrying the Michigan Central Railway over the Niagara River below the Falls. Reference was next made to the position now assumed by electrical engineering in its modern developments, especially as concerned the transmission of energy to great distances.

TWYFORD.—On Monday afternoon the new bridge over the Itchen at Twyford was tested and opened to the public. The engineer is Mr. James Robinson, C.E.; his assistant, Mr. W. J. Taylor, A.M.Inst.C.E.; and Mr. A Thorne is the contractor. The concrete foundations of the new bridge are carried down about 4ft. 6in. below the bed of the river, to get a good bottom, and to avoid the possibility of the water scouring them out, and on these rise the solid brickwork supporting the platform of the bridge, which consists of corrugated steel, the corrugations being a foot in depth, securely riveted to each other, and filled up with concrete, which gives great strength, and is an economical method of construction. The parapets are of wrought iron, with ornamental scroll panels resting on cast-iron arches, and this light construction over the spans is judiciously balanced by solid brick wing walls, with stone caps, whilst the easy approaches contrast very favourably with the dangerous ones to the old structure. The test on Monday afternoon was effected by driving a heavy traction-engine over the bridge at various speeds, and gauging the deflection caused thereby by means of sliding rods underneath. The greatest deflection thus registered was 1-16in., which compared with the Board of Trade allowance for railway bridges of $\frac{3}{4}$in. to every 100ft., shows a very satisfactory result, and the engineer and members of the Board expressed themselves perfectly satisfied with the way in which the work had been done by the contractor, through the medium of his representative, Mr. Frank Proctor. A view, in platinum, of the testing, together with this record is to be built into the pier behind the inscription stone.

CHIPS.

It has been decided to apply, in the next session of Parliament, for powers to construct extensive new docks at Cardiff on the east of the old low-water pier coming out near the orchards. This is the adoption of Mr. Abernethy's old scheme.

On Sunday week the memorial pulpit recently erected in the abbey church of Romsey was dedicated. The pulpit is made of carved oak, semi-circular in shape, and has nine panels to it, and in four of these are placed carved oak figures of the Evangelists. The pulpit is supported by nine oak pillars. Mr. George Wheeler, builder, of Romford, executed the work.

At the office of the Local Government Board, on Friday, Mr. Ritchie received a deputation from the local boards of the West Riding of Yorkshire, protesting against the proposal of Leeds and Bradford for the appointment of a joint conservancy board for the rivers Calder and Aire. The deputation was in favour of a separate board. Mr. Ritchie said the West Riding county council had the power in their hands, and he should certainly not willingly, or without a great deal of argument and pressure, be one to take out of the hands of the county council any portion of their authority.

The school board for St. Just-in-Roseland have adopted plans by Mr. Silvanus Trevail, M.S.A., of Truro, for schools to be built at St. Mawes to accommodate 267 children, with teacher's residence, and a school for 80 children at St. Just.

The Royal Cambrian Academy exhibition at Plas Mawr, Conway, closed last week after a very successful season. The total amount of sales was £2,352.

The Manor Club and Institute were recently opened at Merton, near Wimbledon. The reading-room on ground floor is 25ft. by 30ft., and above is a lecture hall of similar dimensions, and 20ft. in height. The walls are of yellow bricks with Bath stone and red brick dressing. Mr. Quartermain is the architect, and the work was carried out by the estate workmen, Mr. Priestley being the foreman. Messrs. Dennett and Ingle executed the iron flooring, and Messrs. Gregory and Co. laid the wood-block paving; the cost has been £3,000.

Among the new mayors elected on Monday are Mr. Arthur Vernon, J.P., architect, at Wycombe; Mr. James Lemon, F.R.I.B.A., M.Inst.C.E., at Southampton; and Alderman George Kett, J.P., of the firm of Rattee and Kett, carvers, at Cambridge.

The fourteenth annual exhibition of the Royal Scottish Society of Water-colour Painters in Glasgow was opened to the public on Saturday evening.

A receiving order has been granted in the case of James Greenwood, trading as James Greenwood and Son, of Sutton, Maltby-street, Bermondsey, and Cannon-street, E.C., builder and contractor.

The Le Dansk margarine factory at Northam, near Southampton, was inaugurated last week. It has been built from plans by M. E. Brunnarius, of Paris, the contractors being Messrs. Reed, Blight, and Co., of Sutton Harbour, Plymouth. The internal walls are lined throughout with white glazed bricks with blue bands, brought from Paris, and the floors are of composite iron and concrete, packed with silicate cotton between the concrete and the flooring.

Dissolution of partnership is announced between B. Lucraft and Sons, Northport-street and Grange-street, Hoxton, cabinet-makers and upholsterers; as far as regards J. Lucraft.

At Pearl-street, Cardiff, on Wednesday week, the memorial stones of a new Baptist chapel were laid. Mr. Justin Hutchings, of Newport, is the architect, and a contract has been entered into with Mr. Augustus Lewis for £1,265.

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B. S. B.—B. G. and Co.—H. S. T.—F. and Co.—
L. G. I. Co.—G. W. Ry. Co.—W. B. S. B.—J.
—E. and Co.—H. and G.—W. and Co.—G. C.
R. F. W. and Son.—C. B. S.—F. and Son.—M.
—W. J.—B. and Son.—R. and H.—S. A. D. Co.
—B. of B.—F. L. M. and Co.—B. C. C.—P. an
W. P.—J. A.

"BUILDING NEWS" DESIGNING CLU

A. R. M. (The verandahs may project beyond th
ing line if they are not allowed to interfere with
view from the adjoining windows. Verandahs
as a rule by the sea-side, be located between pr
wings for the purpose of better shelter again
and rain. Stone dressings were not asked
D. MCCUBBEN. (See answers published to other
spondents last week.)—E. H. TERRY. (The size
site give the extent of the land available for th
ing and its ground.)—ARTHUR PEACOCK. (Ori
project beyond the frontage line. Such featu
greatly to the cost of a building of this kind.)—
Hanstock, Norman, H. Atkins, F. Jerman.

Correspondence.

THE LATE FIRE AT SANDRINGH

To the Editor of the BUILDING NEWS

SIR,—It is stated that the above d
occurred from a "defective flue communi
fire to the adjacent woodwork" (probably
floor joists). Be this as it may in thi
ticular case, it is at all events a very fr
cause of conflagration in private houses
house took fire from it a few years ag
narrowly escaped destruction. The or
method of construction in which the ends
floor joists are inserted into a wall already
by flues, seems almost devised to invite acc
The custom followed by our forefather
wiser. They usually, in important edifice
the ends of the joists on girders, which i
rested on stone corbels built into the wal
addition to being thus far removed from al
this method of construction possesses the f
advantage of much greater durability as
the woodwork is concerned, as neither the
nor girders are anything like as much exp

is in the usual plan. I have known the joists completely rotted off in less than rs from wall-damp. In such cases, in- new joists is never a pleasant, and is nes a dangerous operation. On the other when it is necessary to renew a corbel ; is a comparatively easy job. I have used in a story-and-a-half cottage wall of only hickness quite successfully, but should not m on *egg-shell* town houses. With fairly tial walls I should adopt the plan of on corbels.—I am, &c.,

EX-CIVIL ENGINEER.

BELGIAN SCULPTURE.

—We see in an edition of your paper of t last, a description of the visit paid to our by some of the members of the Society of ects during their tour in Belgium. We at several critics are hardly fair in their ent, and consequently would thank you to us to reply through the columns of your le paper.

We are accused of treating our statues oo much simplicity. To this we beg to at we have been taught by the masters of ique that the great beauty and dignity s in the simplicity of the line.

We are informed that our work does not finished enough. To this we beg to at we never employ glass-paper, but in- showing in all our statuesque work the f the chisel, and we consider this is the tistic treatment possible.

We never "plant on" any ornament it is absolutely ordered by our clients, for ke of cheapness, and even then we do it ntly.

It is very necessary to point out the nce of labour between the two countries. m being a very cheap country for living, ne fact that some of our sculptors have ith us for over forty years, ought to be enough that our hands feel happy with Ve thought we could not let pass entirely cription of your correspondent without ind of protest. At the same time we are to thank the members of the Society of ects who honoured us with a call, and we always feel proud and happy to receive or their friends on their visit to the ent. Thanking you for having kindly d our remarks in your columns,—We are,

J. A. GOYERS, FRERES.

vain, 5th November.

A CORRECTION.

—We notice in your issue of the 7th inst., in the list of tenders for Castlefields Mills s. Coulthurst and Booty, architects), you ur tender as £1,940. You have been mis- ed upon the point, as our estimate for this of the work was £1,000. We shall be by you correcting this in your next issue.— e &c., WALKER AND SLATER.

xeter Old-road, Derby, Nov. 10.

CHIPS.

application has been made for the discharge kruptcy of Ernest Charles Knight, trading as Knight and as E. C. Knight, of Upper am and Morden, trading as H. Knight as a r and contractor, and as E. C. Knight as a r. The application was refused. In the of Frederick Pearce, of Westgate-on-Sea, r, the discharge has been suspended for nths.

Flixton local board have given their formal val to modified plans submitted by Mr. r Willams, the engineer to the Manchester Canal Company, of the steam ferries which ompany propose to construct at Hulme's e and Irlam, forming means of vehicular unication between Flixton and Irlam.

new offices of the Willesden local board were d on Tuesday afternoon. They are Renais- in style, and comprise in the central blocks oard-room and principal departments and in two-story wings committee rooms and offices. uilders are Messrs. Allen and Sons, of Kil- The architect is Mr. E. Harnor, of John- , Adelphi, and the clerk of the works Mr. son.

ew institute has been erected at Woodhouse , Leeds, and special attention has been paid e ventilation, which is carried out on the system, the latest improved form of the self- air-pump ventilator being adopted for the tion of the vitiated air.

Intercommunication.

QUESTIONS.

[10661.]—**Pargetter.**—Will any of your readers inform me if the word pargetter is used in this country for a plasterer, or pargetting for plastering?—ROBERT PHILLIPS.

REPLIES.

[10642.]—**Strong Room.**—If air bricks discharge outside, the extraction flue is not required, but strong rooms are sometimes placed with rooms around them, and the air bricks have to discharge the air inside under the arch. As the arch is generally a barrel, the extraction flue is placed as high up in the segmental part of the end wall. Its use is to allow the escape of the expanded and heated air in case of fire overheating the walls. The gas inside is dangerous, and as matches are used and thrown about, it is much better kept outside. A leaky stop-cock may allow enough gas to escape to form an explosive mixture. The lamp would hang on the shutting side of the door, and I have never had complaints of their being troublesome.—ROBERT PHILLIPS.

[10653.]—**Wainscotting.**—I am of opinion the builder is not bound to put oak except it was specially named. Wainscotting is the wall panelling reaching from floor to ceiling, as distinguished from dado, a panelling only reaching part of the way. Wainscot oak obtained its name from being used for this purpose, but it is more properly described as brown Riga oak.—ROBERT PHILLIPS.

[10653.]—**Wainscotting.**—Parker, in his "Glossary," says, under "Wainscot": —"This term originally seems to have implied rough planks of oak timber, and subsequently to have been given to wooden panelling, to which they were converted, for lining the inner walls of houses and churches. It was very extensively employed during the reigns of Queen Elizabeth and James I., and for a long period afterwards. The name has long ceased to be confined to *oak* panelling." The italics are in the original. The old wainscotting in many of the Hotel de Villes in Belgium, visited by the Society of Architects, was found to be of deal. Much, if not all, of the wainscotting at Holyrood Palace is of deal.—HARRY HEMS.

[10634.]—**Brick as a Building Material.**—In sandstone or any other laminated stone it is absolutely necessary to lay every course with the inside edge of the wall higher than the outside; in lime and clay stones it is not necessary. In exposed situations in the North I have seen buildings with every face stone worked to a set stock or bevel. Every stone wall should have a brick lining, or it will be so cold that damp air will condense on it and give the appearance of dampness. In the last century they battened and lath-and-plastered inside to prevent this. In high walls, the line being on the top edge of the brick, there is a tendency to slightly cant the brick outwards to meet the line, making the wall higher on the inside edge.—ROBERT PHILLIPS.

[10657.]—**Timesing and Dotting on.**—Mistakes often occur in squaring dimensions of this kind. The rule I adopt is to begin at the right-hand side of the "timesing." The first dimension would therefore read $2 \times 2 + 2 = 6$. Take another example—

$$2 \cdot 4/3 \cdot 2/\tfrac{1}{2}/ \quad \begin{matrix} 5 & 0 \\ 3 & 0 \end{matrix}$$

This would be worked thus—

$$\begin{matrix} \frac{1}{2} \times 2 = & 1 \\ 1 + 3 = & 4 \\ 4 \times 4 = & 16 \\ 16 + 2 = & 18 \\ 18/\ 5\ \ 0 & \\ 3\ \ 0 = & 270'\ 0'' \end{matrix}$$

—CHAS. W. BELL, Southsea.

[10660.]—**Joists, Purlins, and Rafters.**—The formula for common joists is:—

$$D = \sqrt[3]{\frac{L^2}{B}} + 2{\cdot}2$$

Where L = length in feet, B = thickness in inches, D = depth in inches; or, divide the square of the length in feet by the thickness in inches, and the cube root of the result multiplied by the constant for fir gives the depth. For example: Take a bearing of 15ft. and a thickness of 3in.; $15 + 15 \div 3 = 75$; cube root of $75 = 4{\cdot}2$; $4{\cdot}2 + 2{\cdot}2 = 9{\cdot}24$, or a 3 + 9 deal. Formula for purlins:—

$$D = \sqrt[4]{L^3 C}$$
$$B = 0{\cdot}6\ D$$

Where B = thickness in inches, D = depth in inches, L = length in feet, C = distance apart; or, multiply the cube of the length of the purlins in feet by the distance apart in feet, and the 4th root of the product will give the depth in inches. The depth multiplied by 0·6 gives the thickness. For example: Take a bearing of 10ft. and a distance apart of 6ft.; $10^3 + 6 = 6{,}000$; $\sqrt[4]{6{,}000} = 8{\cdot}8$; $8{\cdot}8 + 0{\cdot}6 = 5{\cdot}2$, or, in round figures, a scantling of 4in. by 9in. Formula for common rafters 2in. thick:—D = ·57 L. Where D = depth in inches, L = length in feet. For example: For a bearing of 6ft., $6 + {\cdot}57 = 3{\cdot}42$, or a 2in. by 3½in. rafter. In working out scantlings for ordinary roofs it is as well to take stack thicknesses, such as 2in., 3in., 4in. In practice the above formulæ are seldom used. Experienced men carry in their heads approximate scantlings for all ordinary purposes.—ILTYD.

A firm of engineers have this week completed for the directors of the North Cornwall Railway a survey of a projected extension from Padstow to Newquay, viâ Bedruthan Steps and Mawgan.

Mr. David Laidlaw, the head and founder of the firm of Laidlaw and Sons, of Edinburgh and Glasgow, water and gas engineers, died last week, at the age of 82.

Legal.

ARCHITECTS' AUTHORITY.—II.

AFTER the contract has been signed, it is clearly the duty of the architect to carry out that contract in all its parts fully, and in good faith, having regard to the interests of his employer or client, the building owner. He has no general power to alter, vary, or revise any of the conditions of that contract, because, whatever might have been his legal position as a skilled agent acting for the owner before the contract was signed, he is afterwards bound by the special clauses and conditions of that document. Of course, all these can be varied or waived by the parties themselves, as can the clauses of any other agreement; but unless and until this is done, or the architect is expressly empowered to allow such alterations, his authority is limited to carrying out that contract itself. There may, of course, be, and there often is, a clause in the contract enabling the architect to give directions as to the works; but these directions can only operate within the limits of the document, and cannot have any effect in altering or modifying the whole scheme or scope of the contract as adopted by the parties. The authority of the architect is entirely based upon his agency as standing in the place of his client, the building owner. This is the principle at the root of the whole question, and the builder is equally bound to regard the contract as limiting the architect's authority in all particulars to which it relates. It is, therefore, no use whatever for a builder to try and make the owner responsible for works ordered by an architect which are outside and beyond the contract, and which he has only executed in reliance upon the representations of the architect that he was specially empowered by his client to give such orders. It is obvious that proof, however cogent, of the architect's statements in this respect, cannot avail the builder as against the owner in the face of the claims and conditions of the contract itself, by the words of which all are bound. If a builder has been thus misled, his only legal remedy would be by action against the architect personally.

FRED. WETHERFIELD, Solicitor.
1, Gresham Buildings, Guidhall, E.C.

NOTE.—All questions for reply in this column must be headed "BUILDING NEWS," and must reach my offices, as above, by *Tuesday* morning to insure answer same week.

C N. B.—WATER COMPANY REGULATIONS.—The water company can, when directed to furnish a constant supply of water, compel the consumer to put in an outside stop-valve at his expense; and this although he may have a valve already in his house. The company are entitled to have the valve under their control, which could not be if the valve inside the house were to be taken as sufficient. (2) The Act mentioned would, I think, apply to houses existing at the date of the Act. At least, it has always been worked on that footing, so the company are entitled to give the order mentioned.

J. N.—CHARGES FOR PLANS, &c.—As the plans, specifications, &c., were not used owing to fresh ideas being introduced, and different plans, &c., being required (for which the proper percentage will be paid), I think the way to get at the charges for the disused plans would be to arrive at the time spent on them, charging a proper sum per hour. Add to this the out-of-pocket expenses, and—say five per cent. on the total. This rule, or something similar, has often been adopted in cases like this, and juries have supported the charges; but, after all, a professional man is the best judge of what his work ought to be worth, and he ought to charge what he can reasonably justify.

PROVINCIAL.—ENCROACHMENT.—It is understood that the building with eaves projecting was part of the premises leased. That being so, the neighbour taking off the eaves and erecting a building with gutter on your building would, without consent, be a trespass. If it were allowed for the years mentioned without protest and without recognition of the trespass by him, it would practically become an easement; but you would be liable in the terms and covenants of the lease to the lessor for damages. Give, say, a month's notice to abate trespass, and remove the encroachment. The legal position may not be raised; but if it is, it would be wise to come to some arrangement in which the lessor would join.

A. D —AGREEMENT.—EXTRAS.—An agreement is signed to build houses according to plans and specifications, and you further agree "to carry out the work in detail, or as may be arranged to the satisfaction of the owner." Now you are desired to shift windows after the casings are up and fixed, build the houses higher, put in extra skylights, and so on, and for this the owner refuses to pay. I should say he is liable for these as extras, as they were clearly not contemplated in the agreement, and are beyond it. The words "as may be arranged" must mean something *consistent* with the plans and specifications.

The partnership heretofore subsisting between Messrs. Brown and Pritchett, of Limpsfield, architects and surveyors, has been dissolved.

Our Office Table.

Mr. Norman Shaw, R.A., in a letter to the *Times*, defends the position taken up by the memorialists who protest against the changes now in progress at the Institute of British Architects, by which it is being attempted to transform architecture from an art into a close profession by the introduction of a system of examinations and diplomas. He bluntly remarks that "the views of the Institute and of the memorialists are too entirely opposed to be reconciled by bland appeals and pointless platitudes of the President's address." As to Mr. MacVicar Anderson's classification of architects as artists, constructive geniuses, and men of business, Mr. Norman Shaw contends that the men in the last two divisions are, as such, not architects at all—the scientific constructor already existing in the engineer, the business man in the man of business. He asked whether the Institute's line of action in examining all students indiscriminately, and extending to all the same diploma, "does not indicate only too plainly that the Institute, while professing to protect the public, is attempting to protect the architects; that it has never cared about art at all, but has expended such force as it has entirely on professionalism—that is, on the manufacture and protection of architects who shall be members of the Institute, rather than on the help and furtherance of the art of architecture?" The weak point in the memorialists' case is that they do not show how qualified architects are to be differentiated to the public from these pretenders, except by examination, which logically must be followed by registration. If competitions are inventions of the evil one, and examinations a sham, how is the budding genius to convince the public that he is sufficiently qualified to be intrusted with a first commission? Is any carpenter or undertaker to be entitled, as at present, to add "architect" to his list of ocupations, on the assumption that he possesses, in a latent state, the talent and artistic qualities which, as Mr. Shaw says, "make a man an architect"?

Mr. William Woodward, in his reply to Mr. Shaw, suggests another practical point of interest to art-architects—is the public willing to pay further commissions to the engineer-specialist and to the practical man, in addition to the 5 per cent. charged for the "art" portion of the building, or will it not demand that the architect shall prove himself to be a well-qualified all-round professional adviser?

The death of Mr. John Thornhill Harrison, for the past twenty years one of the engineering inspectors of the Local Government Board, will be noted with regret by many of our readers in all parts of the kingdom, who will bear testimony to his patience and courtesy in conducting local inquiries. Mr. Harrison was born at Thornhill in 1815. He was educated at Edinburgh University, and, on leaving, was articled to his brother, the late Mr. T. E. Harrison, who for so many years was associated with the North-Eastern Railway as chief engineer. In his younger days, Mr. J. T. Harrison worked under Brunel in the construction of the Great Western Railway; but afterwards relinquished engineering for agriculture. He was appointed a member of the first Rivers Pollution Commission, and in 1871 obtained the appointment under the Local Government Board, which he held until his death, which occurred at Ealing on Wednesday week. The deceased was a member of the Institute of Civil Engineers and a Fellow of the Geological Society, and to both these bodies he contributed many papers. Mr. Harrison leaves a widow and one son. By his death an inspectorship of £900 a year is placed at Mr. Ritchie's disposal.

The Art Gallery at Wednesbury was formally opened last week. The institution had its origin in the bequest, some six years ago, of more than 300 paintings, water-colour drawings, and engravings by Mrs. James Richards, of Wood Green, Wednesbury, with pecuniary legacies to the amount of £3,500, £2,000 being towards the cost of the building, £1,000 to form an endowment fund to provide for the salary of the curator, and £500 to defray the cost of re gilding the frames and framing such of the works as needed it. That led to the erection of the gallery now opened, and the collection has been supplemented by the gift or loan of some 300 other oil and water colour pictures, which fill the wall space of the four rooms and overflow on to the staircase. The nucleus, the Richards' collection, includes a forest scene, with Windsor Castle in the distance, by the late F. H. Henshaw (1873), to which the place of honour has been given, and works by Williams Leader, F. R. Lee, John Linnell, Henry Dawson, Henry Moore, Baxter, Marcus Stone, F. Goodall, G. B. O'Neill, George Cole, J. B. Burgess, John Pettie, J. M'Whirter, Mark Antony, Sidney Cooper, F. Danby, A. Elmore, Kenny Meadows, F. G. Cotman, H. Köekköek, and others. Among the water-colours are examples of Birket Foster, David Cox (two studies on rough paper), Samuel Prout, and Sam Bough. The building adjoins the Town-hall, and is Renaissance in style, the facing materials being Stonebridge bricks and terra-cotta dressings. Messrs. Wood and Kendrick, of West Bromwich, were the architects, and Mr. H. Willcock, of Wolverhampton, was the builder.

In consequence of the success of the Exhibition of Antique Carpets held in Vienna some months ago, the Austrian Government has decided to publish a permanent record of the collection, and for this purpose 150 typical examples have been selected. Monographs will be contributed by the leading European experts, and Mr. C. Purdon Clarke, C.I.E., F.R.I.B.A., Keeper of the South Kensington Art Collections, has been invited to write the general summary on this work. Mr. Clarke, who has enjoyed the advantage of having studied the subject at the places where these gems of textile art were anciently produced—in Spain, Turkey, Syria, Persia, and India—will also edit and translate the English edition, the plates of which are to be printed on white satin.

The thirteenth annual report of the City and Guilds Institute on the examination in technology states that there is a much larger increase in the number of papers examined and of passes this year than in the two previous years. At the recent examination the total number of worked papers was 7,416, as against 6,781 in 1890. This year, too, there is not only an increase in the number, but also in the proportion of candidates who have succeeded in satisfying the examiners, the number of passes being 4,099, as against 3,507 in 1890, and the percentage of passes 55·3, as against 51·8. Examinations were held this year in 53 subjects, as against 49, and in 245 different centres throughout the country, as against 219. The increase since the foundation of the institute in 1879 has been almost continuous, and this year's numbers are the largest yet recorded. There has been no break in the continuous increase in the number of candidates in the subject of Plumbers' Work, the numbers being 547 in 1889, 569 in 1890, and 684 in 1891. The failures in this subject are always large; but the percentage this year is slightly lower, being 56·7 as compared with 59 in 1890. In Carpentry and Joinery there is an increase in the number of candidates from 707 to 837, and an increase of passes from 442 to 539. In Brick-work and Masonry the number of candidates has increased from 120 to 179, the percentage of failures this year being 30·1.

A special meeting of the Limerick committee for the National Registration of Plumbers was held the other day, under the presidency of the Mayor of Limerick, supported by the City High Sheriff, Dr. Barry, the corporation medical officer of health, and others, to consider a draft bill for legalising the registration system. The hon. sec. to the committee read the draft bill, and explained that in principle it aimed at giving legal sanction to the work already done, and conferring upon a general council the powers and control already exercised by the various district councils and the Plumbers' Company. Limerick was one of the cities in Ireland scheduled in the bill to elect representatives on the general council. After full discussion, on the motion of Dr. Barry, seconded by Mr. Fogerty, the following resolution was passed:—"That this meeting of the committee for Limerick and district hereby approve of the principle of the bill drawn up by the Worshipful Company of Plumbers, London, to define and legalise the system for the National Registration of Plumbers." The Mayor, in replying to a vote of thanks for presiding, said he was particularly happy to be able to render assistance to a movement so closely connected with the public health.

The well-known business of Mr. James Hill, Queen Victoria-street, has just attained its majority, and the event was celebrated on M day, the 9th inst., at the Holborn Restaur by a dinner. Mr. Hill occupied the chair, there was a large gathering of friends employés. A very pleasant evening was sp the usual toasts being interspersed with so musical sketches, &c. The principal toast "Success to the Firm," and this was suit responded to by Mr. Hill and his junior partn Mr. How and Mr. King.

LEGAL INTELLIGENCE.

Recovering for Unused Plans.—In County Court, Canterbury, on Nov. 3, C. H. Rosher, a civil engineer, of Croydon, Mr. T. G. Browning, an auctioneer, of W stable, for a sum of £40, in respect of plans proposed baths at Whitstable, of which defen was the promoter. The case was tried by Honour Judge Selfe and a jury. Mr. Julian Ro barrister, appeared for plaintiff, and Mr. Milne, rister, for the defendant. The defendant, ha seen an advertisement of the Rainbow Engine Company, having reference to the "Rosher tem" of heating swimming-baths, addresse inquiry to them on the subject. Mr. Rosher down, as the representative of the company, o 14th of March, and, learning that no plans been prepared, explained that he only came as the patentee of the system, but that, ha special knowledge of bath buildings, he woul pleased to get out the plans. Accordingly fendant gave him instructions to prepare p which were duly approved. Ultimately, a pany was formed to carry out the baths sch and another architect was appointed. The fendant repudiated his liability to pay Mr. Ro alleging that the latter had undertaken the wo a speculation, which he stated was a course quently taken by architects and engineers. view of the case was emphatically denied b plaintiff, who, in a letter to the defendant, that he objected to become "a blackleg to his fession." Mr. Theodore Barker, F.R.I.B.A., evidence on behalf of plaintiff as to the reason ness of his charges; but it appeared that the tiff had at one time offered to settle the disput a sum of £15 15s., and in the end the jury awa him £15, and the judge allowed this verdi carry costs on the higher scale.

Re Westminster Improvement Commissio —Mr. Justice Chitty made an order on Saturd the winding-up of the affairs of this body. commissioners were incorporated under an A 1845 for the purposes of an undertaking comp the construction of certain streets, works, an provements. The order now made was the provisions of a special Act of the past sessi

The Charge of Fraud Against an Archi —At the Teddington session on Tuesday, A M. Leach, architect and surveyor, of the Lo Joint Stock Bank-buildings, Smithfield Market Henry Cave, a coffee-house keeper, of Bermon were brougth up, for the sixth time, charged having conspired with a man named Adan defraud the Liverpool and London and Insurance Company of £550. The magistrates mitted both prisoners for trial, and refused bai

Charge against an Architect.—At the Ch ham Police-court on Friday, John Taylor Ma architect, of Newport, Mon., was charged having given a false name and address to Ri Attenborough, pawnbroker, and also offer diamond ring, value £10, to William Har Kent, and refusing to give a satisfactory accou the means by which he came possessed of Defendant admitted that he gave the wrong and address, and was fined £3.

District Surveyors' Fees for Flats.—M Williams.—(Court of Appeal, Nov. 10. the Master of the Rolls and Lord Justices Fr Lopes.)—The appellant was the surveyor und London County Council of the district in whi respondents have recently erected a large bui seven stories high, known as Kensington C gardens, which consist of a number of flats one roof that are let as separate tenement having one common entrance from the street. appellant contended that he was entitled statutory fee in respect of each tenement, whi alleged, constituted a separate building with meaning of the Metropolitan Building Act. magistrates decided in his favour, but the sional Court reversed the decision. The d surveyor appealed.—Their Lordships dismiss appeal, being of opinion that the Act contem that each building must have a separate roo that a district surveyor was not entitled to fees in respect of separate flats, even althoug might constitute separate dwellings.

The model of the *Victory* at the R N.E. ha bought by Messrs. Campbell Smith and Co. built it.


YARD.
DINING ROOM.
SCULL
SERVANTS HALL.
BUTLER
HALL.
KITCHEN
STUDY
DRAWING ROOM.
PORCH
W.C.
Ground Plan





THE CHERUB FRIEZE,
WELLINGTON MONUMENT,
ST PAULS CATHEDRAL.

BY ALFRED STEVENS,
SCULPTOR.



"PHOTO-TINT," by James Akerman, 6, Queen Square, London, W.

Free Library & Science & Art School Ashton-u-Lyne



GROUND PLAN

John Eaton & Sons
Architects & Surveyors
Ashton-under-Lyne

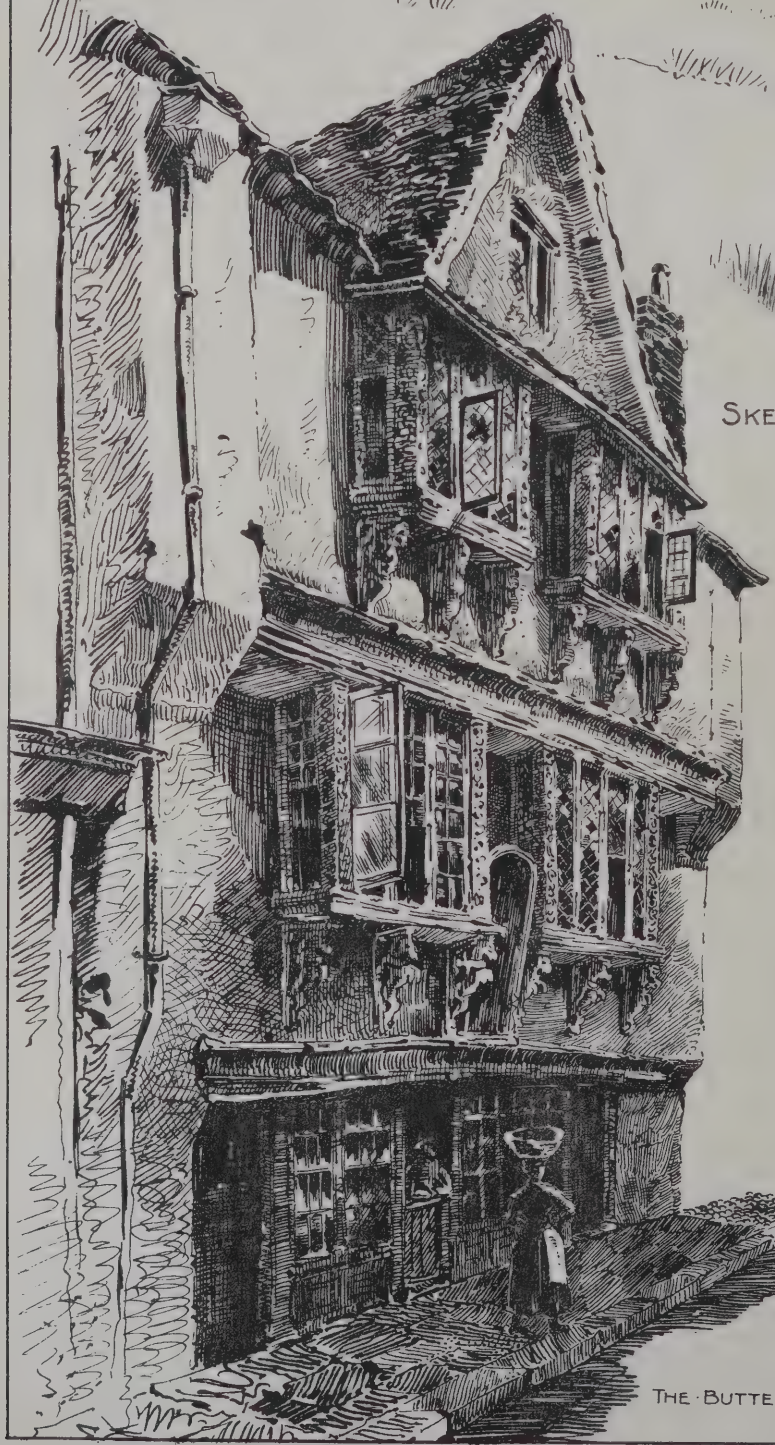
Photo Lithographed & Printed by James Akerman, 6, Queen Square, W.C.



Photo-Lithographed & Printed by James Akerman, 6, Queen Square, W.C.



SKETCHES · IN · SOMERSETSHIRE · BY J·NICHO



THE · BUTTER-WALK · DARTMOUTH ·





THE ABBEY · FARM · PRESTON · NR YEOVIL



NSTON ·

THE · PARSONAGE HOUSE · STOKE-SUB-HAMDON ·



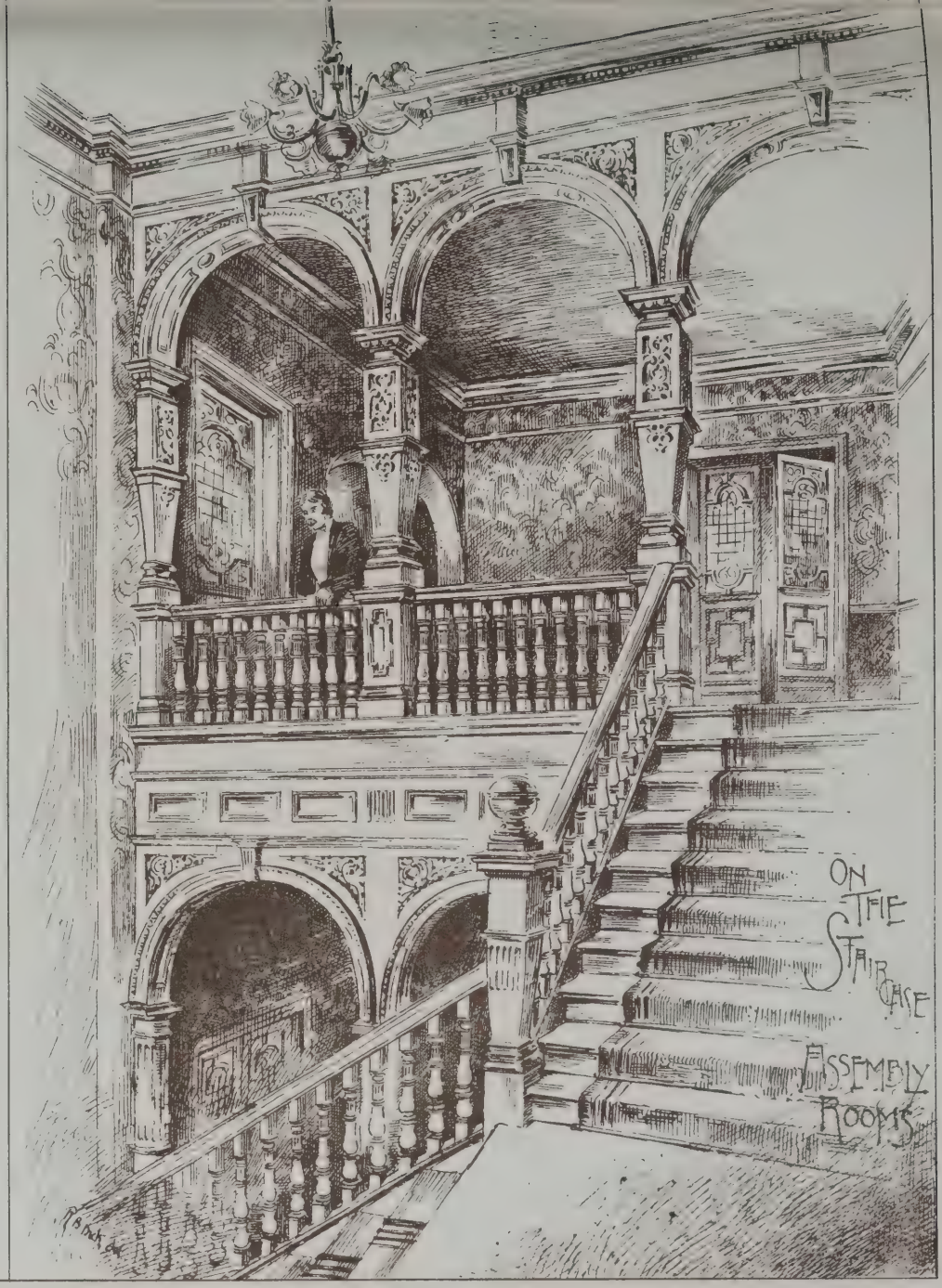
THE HALL & STAIRCASE · · ASSEMBLY ROOMS -



THE HOTEL STAIRCASE



A CORNER IN THE LOWER ASSEMBLY ROOM



ON THE STAIR CASE ASSEMBLY ROOMS

Photo-Lithographed & Printed by James Akerman, 6, Queen Square, W.C.

IE BUILDING NEWS
AND ENGINEERING JOURNAL.
VOL. LXI.—No. 1924.

FRIDAY, NOVEMBER 20, 1891.

NDON BUILDING LAW (CONSOLIDATION) BILL.

VE have before us a copy of the Draft Bill which the Local Government rd will introduce next session, the object which is to consolidate the Metropolitan ilding Acts and certain sections of the ndon Council (General Powers) Act, 1890, latter of which we gave our readers a *umé* some time ago. Of the necessity l value of consolidating the Acts affecting lding in the Metropolis we have quite ently spoken. It is something to be able ake up the Act and find by reference to particular subject what the law really is, the purport of the statuary clauses belong- thereto, instead of having to wade ough all the amendment Acts. We will it our remarks now to a general examina- n and comparison of the Draft Bill with old Acts, pointing out the interpolated uses. To our Metropolitan readers commend a careful study of the ble of Sections of the Acts proposed be repealed with the corresponding uses of the Bill. From this table it will seen that the first section of the old Acts been transferred. Thus, the "Interpretation of Terms," section 3 of the 18 & 19 t. c. 122, is transposed, and is numbered of the clauses of the Draft Bill. These initions gather up all those under the & 19 Vict. c. 122 and 41 & 42 Vict. c. 32, 14. Sections 7 to 11 of the 18 & 19 Vict. ve been recast as regards the application the Act to old buildings. Thus, instead of tion 10, it is enacted that when any old ilding has been taken down to an extent eeding one half as measured in cubic feet, rebuilding of such part shall be deemed new building, "and the old as well as the w part shall be subject to the said pro- ions." The original clause only made the t applicable to every portion of the old ilding that was not in conformity with the gulations of the Act. Therefore the pro- ed regulation will make it compulsory to e down the whole building, if necessary. We next come to the structure and thick- ss of walls, section 12 of the old Act. is section is numbered 1 in the Draft Bill, l commences Part I. of the "Regulation Supervision of Buildings." Clauses 1 to 18 low in consecutive order the original tions 12 to 29. In comparing the new h the old clauses, we find no substantial ference except verbal emendations, as in substitution of the negative particle "not" "no," which is perhaps clearer and more mmatical in form. The proposed re- angement of clauses 1 to 18 includes the tructure and thickness of walls," the rules "recesses and openings" and "general gulations" as to timber in external lls, bressummers, rules as to height of lls above roofs, chimneys, &c. One addi- n is made to the rules as to close fires and es (section 21 of present Act), by which y are not to apply to pipes for "convey- hot water or steam at low pressure," see tion 10. In the rules as to habitable ms (12), a sub-clause (*c*) is introduced, ich refers to underground rooms, which to be constructed as directed by the blic Health (London) Act, 1891. These visions we have already given in our ice of this Act. The rules as to the aration of buildings (clause 16) and their ical contents have been brought together e (see section 27, 18 and 19 Vict., 23 l 24 Vict. section 2, and 53 and 54 Vict. section 29). A sub-clause provides that where the County Council are satisfied, on the report of the superintending architect and the chief officer of the Fire Brigade, that additional dimensions are necessary for the purpose of any trade or manufacture not involving the use of explosive or inflammable materials, and are satisfied that proper arrangements have been made for lessening danger from fire, such additional dimensions may be given, provided that such building shall not contain a number of cubic feet exceeding 450,000, or any less number allowed, without being divided by party walls, and such consent shall not be given in the case of any building exceeding 60ft. in height.

Clauses 18 and 19 of the Bill are important, as they incorporate the main sections of the old Acts relating to open spaces near dwelling-houses, and the limits of height of buildings. Thus section 29, 18 and 19 Vict., which provides that every dwelling-house shall have in the rear or side thereof an open space of at least 100sq.ft., unless the rooms can be lighted and ventilated from adjoining street or alley, is followed by sections 14—25 of the Metropolitan Management Amendment Act, 1882, which provide an open space in the rear of every building erected on a site not previously occupied according to the frontage of the said building. These provisions do not extend to certain buildings in Lincoln's and Gray's Inns and Inner and Middle Temples. We are surprised that advantage has not been taken to increase the areas in both cases provided. For instance, the frontage of a building as a governing factor allows the erection of lofty premises with but the same open space in the rear as those of only two stories. The area allowed gives, in the majority of cases, 10ft. in width of area from back to front, a space quite inadequate for ventilation, especially when a building of several stories is erected. Also the Bill still allows building over this limited area up to the level of the ground-floor story ceiling.

Clause 19 in the new Bill provides a limit of height of 90ft. It runs, "A building (not being a church or chapel) shall not be erected of, or subsequently increased to, a greater height than 90ft. (exclusive of two stories on the roof and of ornamental towers, turrets, or other architectural features or decorations) without the consent of the County Council." Now, this clause will permit many buildings to be erected of considerably greater elevation than 100ft. The two stories in the roof will allow of a steep Mansard of perhaps 18ft. or 20ft. in addition to any architectural features. Why exempt two stories in the roof, which are quite as, if not more, risky in case of fire than those inclosed by walls? If the word "inclusive" had been used the limit would be much more reasonable, and Captain Shaw's recommendation as to height have been more satisfactorily complied with. The regulation of height by the width of the street is a more reasonable rule, and is that which at present limits the height of buildings, except churches and chapels, on new streets of less width than 50ft. by the 25 and 26 Vict., cap. 102., sec. 85. The other new sub-clauses determine that the height shall be taken from the level of footway in front of façade, or from the natural level of the ground before excavation, to the level of top of parapet or wall, or to the base of gable, as the case may be; that the rule is not to apply to a building contracted for before the 18th day of August of last year, nor prevent the rebuilding of any building existing at that date to the same height as before.

When there is a block of building exceeding the height prescribed, it is permitted that any building in the same block may be carried to the original height of the block. A fine of £100 is imposed on any person who contravenes this section, and it is provided that notice of any consent to build to a greater height must be published within one week in a London daily newspaper, and the consent is not to be acted on until 21 days after such publication; also that any owner or lessee to whom consent has been refused, and any owner or lessee of building or land within 100 yards of the intended building who may be aggrieved by the grant of consent, may, within 21 days after refusal or publication of notice of consent, as the case may be, appeal to a tribunal of arbitration, which may confirm, reverse, or vary the refusal or consent.

The subsequent clauses of the Draft Bill numbered 20 to 40 relate to district surveyors, notices to them, their powers of enforcement, fees and salaries, and returns of surveyors, and these clauses correspond with sections 31 to 54, with few exceptions, of the old Act. The verbal alterations made to certain clauses are, on the whole, improvements. The powers of County Council (sections 41 and 42) are practically the same as those which we find in the old Act, sections 55, 61. The Council may alter, with the consent of Her Majesty in Council, the rules for the thickness of walls. An application is to be made to the County Council by persons who desire to erect iron buildings, or those to which the Act is inapplicable, and if satisfied with the plan submitted, they may give their approval; but they may not authorise any warehouse or building used wholly or in part for purpose of trade or manufacture to be erected of greater dimensions than 216,000 cubic feet, except in accordance with certain provisions under clause 16. Sub-clauses give power to the Council to issue general rules as to applications, and provide that the expenses incurred in obtaining approval shall be paid by the builder to the superintending architect, and that copies of plans and publications approved be furnished to the district surveyor.

The next clause, 43, includes the provisions as to control of certain temporary buildings in sections 12, 25 of the Metropolis Management, &c., Amendment Act, 1882. The Council is invested with powers to enter and remove or take down any building not erected in compliance with the requirements. Sub-clause 3 is certainly a clearer and more concise statement than that of the present section. Clause 44, relating to temporary wooden structures, provides that any wooden "erection of a movable or temporary character" (unless it is exempt from the operation of the Act) shall not be set up without a license from the County Council. Substantially this clause is the same as section 13 of the above Act.

Passing over clauses 45 and 46, which refer to the appointment of superintending architect, clause 47 gives power to the County Council to make by-laws with respect to sites and foundations as enacted by the Metropolis Management and Building Acts Amendment Act, 1878. Comparing the sub-clauses or matters for by-laws, we find one of them has been recast in a more concise and consolidated form, as that referring to foundations and sites; two others are added, one referring to the description and quality of the substances of which plastering may be made, and the other the "mode and materials in and with which any excavation made within a line drawn outside the site of house, building, or other erection, and at a uniform distance therefrom of 3ft., shall be filled up." Clauses 48 and 49 embody in more concise terms the sections 17 and 18 in the above Act of 1878, referring to proceedings on non-compliance. The power to appeal is given to any person within seven days after notice has been served, and all such appeals are to be conducted in accordance with sections 211 and 212 of the Metropolis Management Act, 1855,

and section 29 of the Metropolis Management Amendment Act, 1862.

Part II. on Party Structures (now Part III.) includes clauses 50 to 63 of the proposed Bill. Referring to the old Act of 1855, we find sections 82, 83 have been followed. A few verbal alterations have been made in the rules as to the exercise of rights by building and adjoining owners. Thus Clause 53, instead of old sub-sections 4 and 5, as recast reads thus: "Within one month after receipt of the said notice, the adjoining owner may serve on the building owner a notice requiring him to build, or may himself build on any such party structure any works to the construction of which he is hereinbefore declared to be entitled. The last-mentioned notice shall specify the work required by the adjoining owner for his convenience, and shall, if necessary, be accompanied by explanatory plans and drawings."

The additional provisions as to arbitration in the Metropolis Management, &c., Amendment Act, 1882, are incorporated and are practically the same as found in section 21 of that Act. These clauses refer to the appointment of a third surveyor in case of refusal to act, or death of one of the surveyors appointed by the owners, and thereby provides for any contingency that may arise. Clause 55 gives power to building owner to enter premises, as in the old section 86; and clause 56 provides for security to be given by building owner, as in old section 87. Then follow the rules to be observed (clause 57) as to expenses in respect of party structures, as given in the old Act, sect. 88. The remaining clauses of this part of the new Bill practically follow the old sections of the Act. The next Parts III. and IV. of the Bill refer to Dangerous and Neglected Structures and Supplemental Provisions, to which we must refer in another article. By the rearrangement of the old sections, and the bringing together, under their proper heads, the provisions of the original and amending Acts, those who practise in the Metropolis will be saved much wearisome and laborious reference. On the other hand, we should have liked to have seen a few more amendments in those sections relating to structure.

PROFESSIONAL DISAGREEMENT IN MATTERS OF ART.

UNION and co-operation amongst architects do not imply any agreement in questions of art. What with buildings that defy all principles of artistic design and proportion, and public denunciations of methods which are intended to promote architectural education among the profession, any common grounds of action appear to be out of the question. Consistency or congruity in matters of taste is certainly not one of the results to be anticipated from advanced knowledge of the requirements of the profession. Organisation has done something to further the interests of architects by uniting members of one class where individual efforts would necessarily fail; but it has been powerless to draw artists together upon questions which lie beyond the realm of construction and matters of fact. Abundant instances of this are to be found. When a large space is recovered from street reconstruction, or a site is opened, the authorities resort to experimental models in the absence of ideas, and artists with any at all are the most bitterly contentious of opponents. The factions of art are almost as numerous as those of theology; in fact, the *odium theologicum* of the schools may be found amongst artists whenever any party cry is evoked—witness the angry recriminations of those who took part in the "Battle of the Styles" not many years since, or in any controversial subject which comes up for solution in the newspapers. There is no rallying ground. The proposed polychromatic treatment of great national edifices like St. Paul's provokes the most conflicting views, and architects have ranged themselves on opposite sides, according to their tastes and proclivities. In fact, denominationalism in art teaching will exist as long as men think differently; but while we must make allowances for individual sentiments and tastes in questions of art, there are certain rules and canons about which all artist ought to be agreed, whatever their leanings and idiosyncrasies. We expect to find this general consensus of opinion in those bodies and societies of professional men which are supposed to represent the architectural profession. How strange, therefore, it seems when we find discrepancies amongst those who should set up a standard of taste, and to whom the public look for enlightment and instruction.

It is certainly instructive, if it is not also discrediting, to find the President of the Institute in his annual address censuring, in strong terms, an erection which everyone will admit is a disfigurement to one of our noblest public edifices; but more extraordinary to find it is an erection from designs by, and executed under the direct supervision of, a member of his own body, and the meeting formally passing a resolution calling attention to the injury being done by one of its Fellows. But this is by no means a singular case in which the architectural designs of members have been critically animadverted on. The public may well be amazed. If doctors disagree, who is to decide? Surely the Areopagus of architecture is quite within its rights to institute inquiries and express an opinion; but the public look upon the archons as incapable of committing grievous sins against good taste, or at least incapable of spoiling a public edifice by another erection. The ordinary individual at least would imagine that any architect could not defy ordinary rules of correct art. A professional body may censure those of its members who accept illicit commissions from tradesmen and others, and lay down rules of professional charges and conduct, for there are black sheep in every flock; but it cannot, without appearing rather "small," afford to criticise buildings for the violation of very common rules of art, which every architect ought to observe, for many would be taken to task if this authority were exercised. When any flagrant case is brought to notice, however, silence would be reprehensible.

The want of unanimity among architects in respect of the common basis and grounds of their profession, however, has been lately made very apparent by those "memorialists" who protest against the attempt to reduce architecture as an art to a matter of examination. When we see so eminent and successful an art architect as Mr. Norman Shaw, R.A., attacking the scheme of examinations formulated by the Institute, and denouncing the division of architects spoken of by the President of that body in his address, we may ask, indeed, how these things can be? When architects of repute contend that constructive geniuses and men of business are not architects at all, while the Institute includes them within the ranks of the profession, the public naturally inquires, Which is right? Mr. Norman Shaw asserts that the Institute cares nothing for art, but only seeks to enrol architects as members. The public do not trouble themselves about the threefold distinction, but simply look to results. They see many of our most eminent architects, outside any professional body, designers of important public edifices, while those who have gone through the examination test are unknown as architects. No one is so silly as to imagine we can implant artistic genius into any one, or develop it if it is latent, by examination, neither can we m musicians or poets by such means. But employer of an architect prefers to have who is not only talented but competent look after his interests, who knows w good construction is, and to be competent deal with liabilities should they arise. least, there is a kind of knowledge that car tested—that which concerns common mat of law and business, and the public hav right to be assured that a professor of the is competent in these points. Examinat or registration will at least insure public that the individual so attested capable of knowing good from bad constr tion, sound from inferior materials, gen being left out of the question. So that see in all these instances proofs of want agreement among members, and furt that the foundations of art are not e accepted by all architects alike. If one p fessor can erect a monstrosity, and anot contend that art is "born," and cannot acquired, outsiders will begin to think th is no certitude. An architect who can des a building which shocks one's sense of g taste, and the affirmation that there is no for an architect, are consistent aspects of question—one explains the other. Un this unsatisfactory state of opinion, bear upon the commonest principles of art would be hard to say that incorporation architects has done much towards m gating ugliness, unless we believe, as must do, that there is something wanting the education of those who practise art. canons of good design are certainly beyond our reach. Genius ought not to necessary to enable a committee of arc tects to decide whether a design is in agr ment or not with a certain standard of g taste.

If we turn to the question of the plication of ornamental design to s matters as surface decoration, wall-pap relief ornament, and the like, we find v irreconcilable views, often positively cont dictory to the principles of the best peri of art. Some who have been taught in school of conventionalism have sudde gone over to the naturalistic camp, and h designed ornament in utter disregard of th principles which have been universa accepted. In the "conventional" style, rendering of natural forms is made to ag with the material and decorative characte the work. A restraint is imposed on forms adopted, and the material and posit of the ornament is kept in view. brought up in this method cast round novelty, and at last adopt the very oppo extreme. Regarding conventions in art akin to a slavish following of precedent, t think that "naturalism" offers them n scope for their invention; but in realit is exactly the reverse. The adoption natural forms imposes no principles and restraints; sprawling vegetation or l age of the most unsymmetrical position is mistaken for decorative sign; even the accidental and imper freaks of natural growth are rep duced with a fanaticism worthy only primitive fetichism; the meaning of "or mental" is completely ignored for n literal reproduction of the weakest kind. this mistaken view of art, principles are c pletely subverted to mere unrestrained fa This unintellectual art is even spread to architecture. Those principles wh Classicists and Gothicists have alike spected as primarily necessary, are in dan of being repudiated by a few minds believe that anything is architectural dire it takes root and is made the object certain cult; that the most debased form Dutch Renaissance and Spanish extravag in detail, in which all distinction betw Gothic and Classic appear to be lost, worthy of following.

E SYMBOLISM AND ICONO-RAPHY OF EARLY AND MEDI-EVAL CHRISTIAN ART.—XIX.

y George Ashdown Audsley, F.R.I.B.A.
hor of "Handbook of Christian Symbolism," nd several works on Architecture and Art.)

Sixth Subject.

EXT.—"And God said, Let the waters bring n abundantly the moving creature that hath and fowl that may fly above the earth in the firmament of heaven. And God created great les, and every living creature that moveth, h the waters brought forth abundantly, after kind, and every winged fowl after his kind: God saw that it was good. And the evening the morning were the fifth day."

the illustration from the mosaics of the Cathedral of Monreale, in which the ator is depicted dividing the waters from dry land, and creating grass, herbs, and t-trees, He is shown seated on the zoned e or disc, with His feet resting on the dry l, and having before Him a piece of er, on the shore of which grasses and s are shown growing (see Fig. 55), so , in the illustration of the events of the h Day, Fig. 56, we find Him occupying ecisely similar position, the only essen- difference in the picture being that the ses and trees do not appear, their place g taken by nine birds of different ies. The mountain, however, remains.

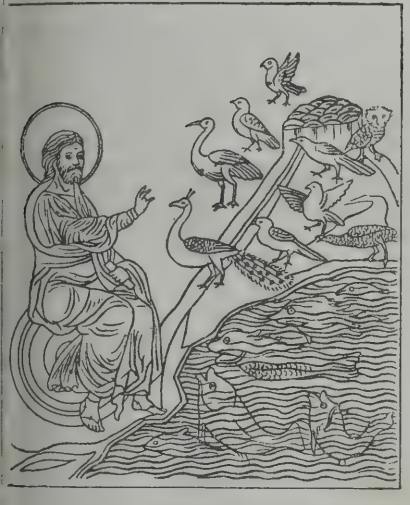


Fig. 56.

he water are represented several fish ming towards the Creator; whilst, as just been said, on the dry land are ted several birds, conspicuous amongst h is the peacock with its brilliant tail. biblical story of this Day's work is here hically and simply told by the mediæval icist—a page which he may read who

the series of subjects in the vestibule of Mark's, at Venice, the representation of Fifth Day does not differ materially that just described. The youthful e of the Creator stands with a space of r before him: in the water are repre- d fishes, whilst above it are depicted flying.

aving such early efforts of symbolic art, hich one finds a simplicity and direct- of aim which almost disarms criticism, ay turn to the more ambitious works of times. We find better drawing or lling, and a more artistic distribution rts, and steps towards correctness in ective, but it is very questionable if the s of Creation are a whit more clearly rth, or the mysteries of the primal made more intelligible to the observer's . Take, for instance, the representa- of the Fifth Day, in the sculptures of athedral of Orvieto. We find a rugged cape represented, through which rushes a river, and in the foreground of which are two stunted trees. Standing on the nearer bank is the Creator, attended by two angels, holding in His left hand a closed scroll, and stretching forth His right hand towards the river, as if in the act of calling into existence the fish which swim therein. On the farther bank of the stream stand several large birds, stiffly disposed and greatly out of proportion with respect to their surroundings.

Speaking of the Orvieto sculptures, and of this one in particular, Lady Eastlake remarks:—"We now turn to Art proper, which presents but few instances of these subjects. As the development of its powers gradually outstripped the short-hand process of early efforts, the acts of the first days, except in such cases as we have just instanced, were gradually omitted. The curious sculpture on the west front of the Cathedral of Orvieto, executed, it is supposed, by the followers of the Pisani, is perhaps the most important series of the Days of Creation existing. Here, in some measure doubtless owing to the conditions of sculpture, which does not admit of subjects requiring colour, the series commences with the Creation of Fishes and Birds on the Fifth Day. Here the Creator is seen attended by two angels, who accompany Him throughout, and seem, by their expression and actions, intended to suggest the emotions proper to the scene. Thus they hover behind Christ as He stands on the brink of a stream blessing the fish who are disporting in it, while the birds stand on the opposite cliff in a stiff row, as if awaiting the divine mandate. In this scene the eagle and the goose are easily recognisable; while some songster of the grove alights with outspread wings on a bush close by, and in the distance a hawk stands by itself." We have in the preceding article (XVII.) directed attention to the portraiture of the Creator in the Orvieto sculptures, and need not reopen the subject here. It will, however, be observed in the above quotation that its writer speaks of the Creator as "Christ."

Seventh Subject.

Text.—"And God said, Let the earth bring forth the living creature after his kind, cattle, and creeping thing, and beast of the earth after his kind. . . And God made the beast of the earth after his kind, and cattle after their kind, and every thing that creepeth upon the earth after his kind. . . And God said, Let us make man in our image, after our likeness: and let them have dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth. So God created man in his own image, in the image of God created he him; male and female created he them. . . And God saw everything that he had made, and, behold, it was very good. And the evening and the morning were the sixth day."

The acts of Creation embraced by the Sixth Day are threefold. In the first place, there is the creation of animals and creeping things; in the second place, the creation of man or Adam; and in the third place, the creation of woman or Eve. Art has always recognised these acts as distinct. According to the wording of the above text it would appear as if the creation of both the man and the woman took place at the same time: and, doubtless, had the Mosaic description gone no further, artists, in essaying to set forth the acts of the Sixth Day, would have represented Adam and Eve as called into existence, side by side, at the same time. This, however, was never done; and in mediæval renderings two distinct and independent acts are set forth. The authority for this treatment is furnished by the following:—

Text.—"And the Lord God caused a deep sleep to fall upon Adam, and he slept: and he took one of his ribs, and closed up the flesh instead thereof; and the rib, which the Lord God had taken from man, made he a woman, and brought her unto the man."

In the series of mosaics in the Cathedral of Monreale there are two independent subjects devoted to the Sixth Day. In the accompanying sketch of the first of these (Fig. 57), the creation of the animals and of Adam is set forth. The figure of the Creator is almost identical with that in the preceding subject, and the mountain is again repeated. Beyond the mountain are represented several animals, including the elephant, camel, horse, ass, ox, and sheep. These have been created, and are moving away. In the foreground is Adam, seated on the ground, from which he has been created, and apparently receiving, direct from the lips of the Creator, the breath of life. "And the Lord God formed man of the dust of the ground, and breathed into his nostrils the breath of life; and man became a living soul." The treatment of the Monreale subject is simple, true to the Mosaic description, and direct in its teaching. It must never be forgotten that all such pictures were intended as books for those who could not read; as teachers at a time when the million had neither schools nor books to instruct it.

In the series of mosaics in St. Mark's, at Venice, the creation of the animals is kept distinct from that of man. The Creator is, in the first instance, represented standing with animals in pairs before Him. In the second

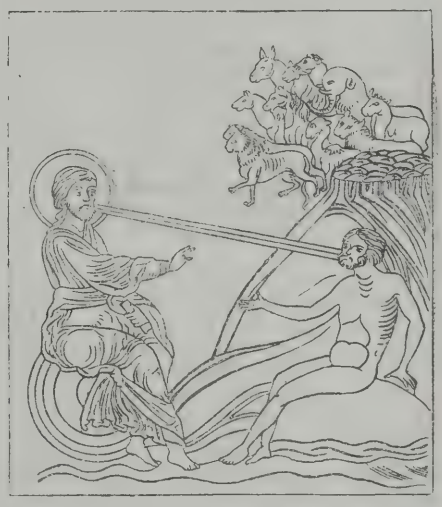


Fig. 57.

instance, He is depicted, accompanied by six angels (probably intended to typify the Six Days of Creation), with a dark and shapeless figure before Him, which He is touching. Then again the giving of a living soul to Adam is represented in another subject in which the youthful figure of the Creator is holding towards Adam a small, winged-being in human form. As Lady Eastlake remarks: "In the second act the infusion of the living soul is seen. In the mosaics of St. Mark's this is curiously and beautifully given, with the help of classic reminiscence, by a little spirit with butterfly wings—the true Psyche—which flies up to Adam's face, while the Creator stands by." Notwithstanding the poetical character of this treatment, it fails to convey the words "and breathed into his nostrils the breath of life" in the direct and simply way set forth in the Monreale subject.

In the sculptures at Orvieto, the creation of the animals and the creation of man are kept distinct. In the former the Creator, accompanied by two angels, is represented standing, with His right hand outstretched in the act of blessing a group of animals. In the latter, the Creator stands with His left hand resting on the head of Adam, and His right hand elevated in the act of blessing. Adam is just in the act of assuming an erect position, as if suddenly endowed with anima-

tion. There is here a remarkable lack of artistic expression which goes far to lower the standard of this representative series.

In the miniature in "Cædmon's Metrical Paraphrase" of the Creation of Adam and Eve, there is no special act of creation represented in the case of Adam, for he is shown reclining asleep on a bank, whilst the Creator is stooping over him and extracting the rib from his right side. On a higher part of the miniature the Creator is depicted blessing Eve, who looks upwards to the face of God as if suddenly endowed with life.

The words of the text, "and the Lord God formed man of the dust of the ground," seem to have taxed the ingenuity of mediæval artists, in their desire to render the statement of scripture in a direct and expressive manner; and some crude and curious efforts were the result, as might reasonably be expected. For instance, in a miniature in an Italian manuscript of the 13th century, the Creation of Adam is thus represented. In the centre of the picture is an almost shapeless mass, supported in an upright position by the hands of an angel. Opposite this pillar of earth, or clay, stands the Creator, an aged figure, robed, and invested with the tri-radiated nimbus, in the act of blessing, or, more probably, creating. Speaking of this miniature, Didron remarks:—"God is in this picture assimilated to a great artist, himself giving the finishing touch to a work that has been brought into form by an inferior artist. The inferior artist is here represented by the angel who is fashioning the clay, giving it a rude and imperfect form and semblance of a man. This man is, as yet, merely clay, formless, motionless, and devoid of life. God the Creator is here present, with his right hand raised in the attitude of benediction, blessing the roughly-modelled statue which is to be Adam; and breathing into it the breath of life."

Turning now to the scenes on the wonderful bronze doors, by Ghiberti, of the Baptistery at Florence, we see the creation of Adam simply and beautifully rendered. Adam, a finely-developed and manly form, naked, in the prime of life, is shown as if rising from the ground, his left hand being held in the left hand of the Creator. The Creator is represented as a man of venerable aspect, heavily draped, without a nimbus, and leaning forward with His right hand raised in the act of blessing. Animal and spiritual existence are here both expressed, for God the Creator is raising his form from the earth with one hand, and bestowing a benediction on him with the other. Art could go no further, for even the giant artist, Michael Angelo, sought inspiration from this work for his Adam in the Sistine Chapel.

(*To be continued.*)

THE RAPID TRANSIT PROBLEM IN NEW YORK.

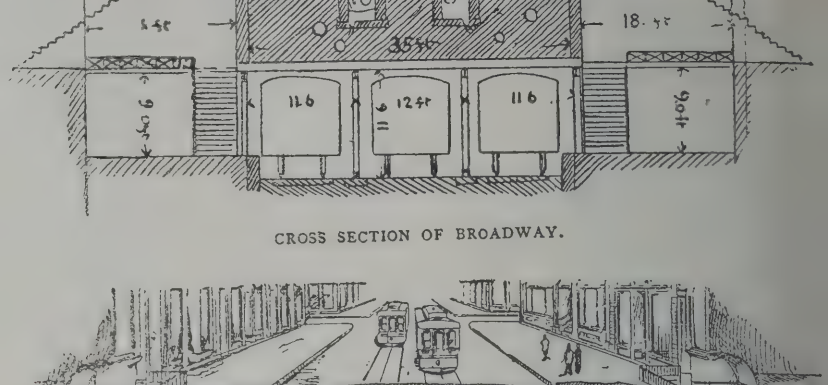
THE Commissioners appointed to consider this pressing question as to how best to overcome the congested condition of the streets of New York, and furnish a ready and rapid means by which business people may be enabled to travel quickly to and from their offices and shops, have just issued their report. The drawings, which we now reproduce from the *Engineering Record* of that city, show the kind of proposed road which is advocated under the Broadway as a commencement. In 1887 a Government Commission advised viaducts for such rapid transit, having heavy steel rails on ties laid in an elastic material between the floor and the ties, the aim being noiseless motors, with cars propelled at high speed through the open air. Now an underground scheme is advocated; but whether it shall be carried out by private companies organised for the purpose, or by the public authority, remains, for the present, an open question.

The Board in entering upon the duties imposed upon it by the statutes of the State, determined at the outset that it must lay the foundation for such a broad and comprehensive system of rapid transit as would meet the needs of the city at present and be capable of expansion in the future; that both express and way service should be provided, and that the construction should be effected with a minimum of street obstruction. The Board, by advertisement, invited the submission to it, at public meetings, of suggestions as to routes, plans, aad manner of construction. These public meetings were largely attended, and plans submitted in great variety and number, which were carefully examined and considered. It was appreciated that any system devised with a view to permanency and the capacity requisite for the future would be very costly, and the route, therefore, should be along main arteries of travel, in order to give relief where most needed, and to command the necessary traffic to make the line remunerative.

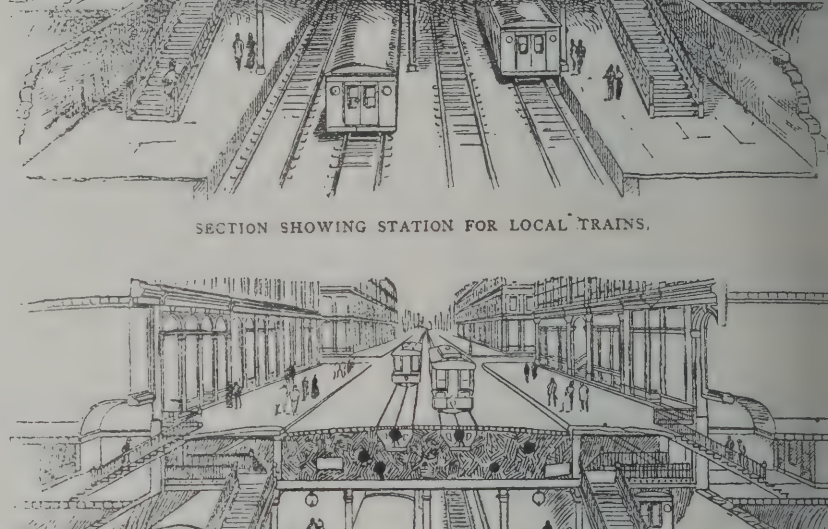
With this much determined, the two governing questions remaining were the general plan of the structure and the motive power to be used. Appreciating that a viaduct of masonry would be the most desirable means of transit, the Commission considered many plans for such a route. An elevated structure on Broadway below Thirty-third-street was prohibited by the statute. A viaduct of masonry was manifestly impossible on any adjacent street. A viaduct through the blocks in the lower part of the city, the Commission believed to be too costly, and subject to too many delays in the acquisition of property rights, to be within reasonable hope of attainment. It was, therefore, unavoidable that transit in the lower part of the city mu secured by an underground structure.

A line under Broadway being decided the question was narrowed to the charac the structure, and its distance below the su whether it should be deep or shallow, wh in providing for the four tracks necessar entire width of the street or only a portion be used, and whether the surface of the and existing pipes should be again dist The impression prevailed to some extent tunnel could be driven under Broadway e through rock within reasonable distance surface, thereby obtaining a stable roof, an avoiding many difficulties in construction. commission caused careful and accurate b to be made on Whitehall-street and Broa at every cross-street from Front-street to T third-street. These borings conclusively di of the idea of a continuous rock roof for a t except at such depth or with such grade a almost, if not quite, prohibitory.

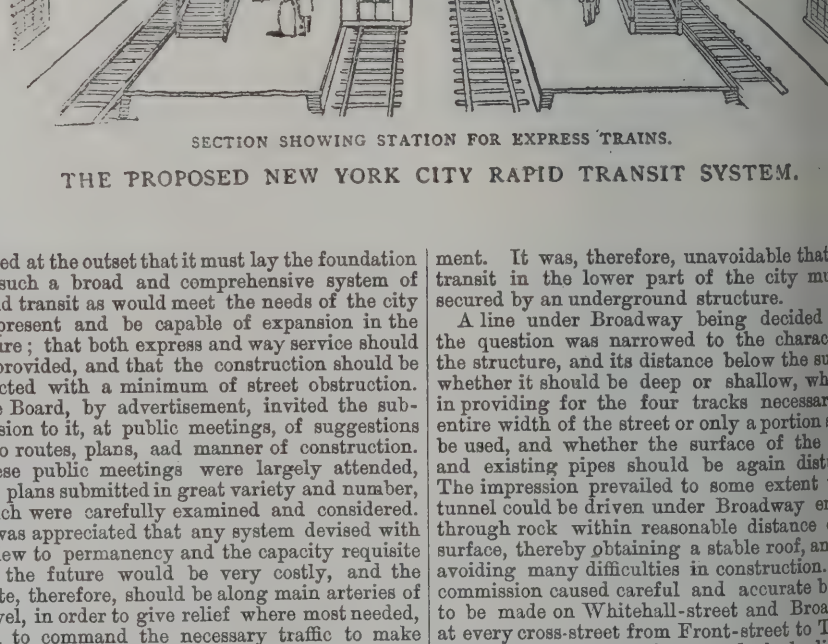
It followed then that a tunnel for a co able portion of its length—and that pr under the portion of the Broadway questions of property rights would prese greatest difficulties—must be driven th sand. The question was whether this co best accomplished near the surface or at siderable distance below, and, if the latter that distance should be. Much would upon the number and depths of shafts used. mere cost of excavating below ground wo



CROSS SECTION OF BROADWAY.



SECTION SHOWING STATION FOR LOCAL TRAINS.



SECTION SHOWING STATION FOR EXPRESS TRAINS.

THE PROPOSED NEW YORK CITY RAPID TRANSIT SYSTEM.

a small proportion of the whole when it is idered that all the excavated material for a modious four-track structure, with ample on and platform facilities, must be raised to surface through shafts opening on or near ded streets.

he question also arose as to what depth would re immunity from dangers when the material e excavated was sand, liable to be wet and to with this liability increasing with the depth, when the pressure from above was that of dway's heaviest buildings. To this nothing trial and experience could give an answer.

difficulties of ventilation and drainage ase with every foot of depth. A deep el would require elevators as a means of ss, and stairways would be necessary in tion, which, except for emergencies, would ractically useless, and to properly provide emergencies must be broad and costly. ern and improved elevators in sufficient bers would doubtless provide for the regular me of traffic at ordinary stations, but they not believed to be adapted for large crowds, as must frequently gather on a line of sit under Broadway. Stairways 100ft., more ss, in vertical height would be of no avail as ces of relief for crowds moving upward, and ld be extremely dangerous for crowds moving nward. Moreover, it is not believed that a subterranean line of transit, with elevators, ld attract short-trip passengers, and the short- business is absolutely essential for the success ny line the cost of which at all approximates of a four-track tunnel in New York City.

is admitted the nearer the station platforms to the surface the more attractive the line. ly accessibility by means of short, broad, and modious stairways, supplemented where ssary by elevators, better light and better ilation at stations, light and air at inter- iate points if necessary, and the feeling of ter security on the part of the public—these, other considerations, led to the decision upon part of the Commission, to place the under- nd structure as near the surface of the street ossible, and the engineers of the Board were cted to submit two separate plans, one for tracks on a single level, the other for a le-deck tunnel with two tracks upon each

hese plans were prepared, the one providing our tracks on a level, at the minimum dist- below the surface to admit of the non- rbance of existing pipes, conduits, and other erground structures, and occupying sub- tially the entire width of Broadway from to curb, but not at such depth as to require vation below the foundations of the heaviest most costly structures abutting on the street. he other plan of double-deck tunnel would py less width of the street, and presented the ntage of the removal and replacement in eries of the pipes and other existing under- nd structures. A disturbance of the street ace would be unavoidable in this case, but a t and permanent benefit would be derived the fact that such disturbance would not be ated in the future for any cause, except the ing of the pavement, as the pipes in gal- s would be accessible at all times for purposes epair. The excavation required by this plan about 4ft. more in depth than by the other. length of stairway to the local stations ld be less, but to the express stations, greater in the other plan.

hen the Commission decided to adopt an erground route, it was decided that the ive power must be secured without com- ion in the tunnel. Much attention has been ted to the consideration of electricity as a ive power. Consultations have been held eminent electricians; experiments have witnessed; electric roads in operation have examined. While the Board is convinced electricity as a motive power is available for purposes of the railway recommended by this rt, it is not deemed wise at the present time xclude other forms of power answering the ntial conditions of speed and non-combustion he tunnel, or to attempt to direct the exact od of application of such power as shall ly be adopted.

E ARCHITECTURAL ASSOCIATION.

HE third ordinary meeting of the Associa- tion was held on Friday evening, the ident, Mr. F. T. Baggallay, in the chair. The following 13 new members were elected: Messrs. S. W. Curtis, L. Walmisley, G. H. Manning, W. E. Tower, Ernest Mouatt, F. Catling, J. K. Bateman, J. Allen, P. H. Nowell, R. E. Bennison, A. Wood, M. S. Hack, and A. Nicholson. Seven nominations were also read.

No other nomination for the vice-presidency—rendered vacant under the rules by Mr. F. R. Farrow's acceptance of paid office as a lecturer—having been received, Mr. Farrow was unanimously and by acclamation re-elected. Mr. Farrow briefly returned thanks.

THE PLANNING AND CONSTRUCTION OF AMERICAN FRAME HOUSES.

Mr. C. H. Brodie read a paper on this subject, illustrated by some sketches, details, and tracings by the author, and also by numerous plans and perspectives from the United States professional journals. Mr. Brodie mentioned that he was engaged on business in America during the winter of 1887 and the spring of 1888, during which time he spent considerable time in New York and Chicago, with flying visits to Boston, Baltimore, Philadelphia, Washington, Pittsburgh, St. Louis, Kansas, Milwaukee, St. Paul, and Minneapolis, and other cities. Such houses as were illustrated on the walls are, he remarked, the type of American homes, alike in the north, south, east, and west. In the actual town areas the erection of timber houses is now forbidden. Still, in the Southern States universally, and over the country and suburban districts generally, it is rarely that any but timber houses are erected. The average time for erecting a frame house is ninety days, but many have been built in sixty days, and whilst the life of the structures may be averaged at fifty years, there are very many in existence even a hundred and some two hundred years older and over. Again, stone quarries as yet worked are few and far between, and brick-works are not by any means numerous. But the country abounds with the most beautiful timber, with which even the denuded Eastern States are kept plentifully supplied by means of immense rafts floated down the great rivers to convenient points for transport by rail or boat. A frame house may be very expeditiously erected. The drawings on the walls show a basement, rising only a foot or so out of the ground, built of either brick or undressed stone, and on this is a frame of quarter partitions, two stories high, forming inclosure and divisions. These and the joists being fixed in position, the roof can be immediately constructed and covered in, so that whilst the outside is being completed, the inside, too, is progressing, and during the time that we should be getting up a scaffold, the frame house is built. The plasterwork being then, if necessary, dried by artificial heat, the joinery and other fittings are placed, and the dwelling is ready for occupation in a very short time. Should the worthy owner's family increase, additions to the house are just as easily and expeditiously made. The plans show a basement and two upper stories, and the roofs being mostly of steep pitch, plenty of room for attics is obtained in them. The basement contains a laundry, beer and wine cellars, coal cellars for both house and furnace coal, larders, and the heating chamber, containing either a boiler for steam or a furnace for hot-air heating. The heat there generated is distributed by ducts quite evenly over the whole house, and most of the rooms have no fireplaces. This is a stage of civilisation to which we have not yet generally attained. Where fireplaces do occur, and this is chiefly on the ground floor, an ashpit is provided under each, into which, when the hearth is swept up, the ashes, &c, are dropped by moving a dump or hopper. These ashpits are marked on the basement plans. The ducts serve in the hot weather to distribute cold air over the house, the air in the cellar, whence they start, being naturally cooler than that outside, whilst it can, if necessary, be cooled still further by artificial means. Coming to the ground floor or first story, as their plans have it, we find a parlour and dining-room, and also perhaps a library or a second parlour. The dining-room is always in connection with the kitchen through a lobby or pantry. You will note, also, that there is no scullery shown, although on some of the plans is a diminutive space marked "sink-room." On this floor are also various store-rooms and closets, w.c.'s, lavatory, &c., depending as to size, number, and variety on the general dimensions of the house. And here I would call special attention to the very complete way in which all classes of American houses are fitted with cupboards, shelves, drawers, sideboards, book-cases, &c.—all conducing in so eminent a degree to the comfort and ease of the occupants. No bed-room that I occupied in any private house in the States was without a cupboard large enough to walk into and turn round in. The convenience of this is too obvious to need expression. The hall is always furnished, and used as a room; most of the American plans have it designated "reception-hall," and some even "sitting-room." The verandah is also a most important feature, and one never omitted. During the hot season it is inclosed with blinds, and becomes the most frequented part of the house. The first floor has the usual bed and bath rooms, linen closet, &c. You will observe that in most cases the w.c. apparatus is kept away from, and not, as with us, next to, the outside walls. This is to avoid fracture by freezing during the intensely cold weather. To return to our first-floor plan. You will note that all the chief bed-rooms have a fixed lavatory fitting generally in a cupboard, so as to be out of sight. This adds, of course, very considerably to the plumber's bill, but in the long run it is a great saving, for labour of all kinds is terribly costly. Balconies are freely provided on this floor, and are delightful spots in the hot weather, whilst they always form a feature in the elevations. The attics are used for servants' rooms,—each still with a good cupboard—box-rooms, store-rooms, &c., or the space is frequently just floored and then left to be cut up as the wants of the occupants may later on suggest. About the elevations, outside and in, or the artistic part, one need say nothing, except that, to our eyes, the calm and dignified treatment of the English example contrasts very favourably with the fussiness and over-picturesqueness and evident striving after "features," which spoils so many of the other designs. The construction you can study at your leisure by referring to a specification printed in blank, which is in the Institute Library. It is indexed under the name of the publishers, Messrs. Palliser, of New York, to whom I am indebted for a good deal of the information this paper contains, and for a drawing and specification hung on the wall. I was struck with the very practical character of the specification. For instance, among the general clauses I read: "The carpenter will make all patterns, &c., and will provide suitable protections to all openings to keep out the cold, rain, &c., and will clear the building of all carpenters' waste materials before the plastering is commenced. The mason must provide coal and stoves in cold weather for heating the building while his work is going forward and until it is dry." Continuing, we shall get particulars as to how this class of house is put together, and we naturally find after the general clauses the necessary directions as to the excavations. The only unusual point here is: "The bank is to be dug well away from the walls, and left open until the walls are set and dry." The damp course is to be either slate and cement or asphalt. The brick walls are required to be built to "a true line from one end to the other, even to the cutting of a brick where necessary, so that the carpenter can size the joists to an exact width, and place them directly upon the wall without blocking up with chips or pieces of wood." The facing of these brick walls is to be "neatly tucked and properly cleaned down with aquafortis, and oiled with raw linseed-oil at completion," care being taken not to injure, in cleaning down with the acid, any cut stonework. The laths for lathing are to be "laid a full ¼in. apart, and joints broken every 18in." Wood laths, however, are now rarely used. I never saw any at all. The plastering is put on wire netting, or one of the many forms of pierced or expanded metal now coming into use in this country. The plastering is to consist of "A good coat of brown, well-haired mortar, made of pure unslaked lime, and clean, sharp back-sand, free from loam and salt, and best cattle or goat-hair, well mixed by continued working, and stacked in the rough for at least —— weeks before putting on." The finish is to be "A coat of best soapstone finish, manufactured by the company, composed of finishing-lime, putty (two parts), and patent soapstone finishing (three parts), thoroughly mixed two days before using, and applied in the most careful manner, as per directions"—I suppose of the manufacturers. The order of the trades as they are placed in the specification differs considerably from our usual arrangement; and we next come to the carpenter and joiner. All the timber which will be ex-

posed at the finish is required to be of a certain quality pine. The joists are to be placed, in all cases, with the "crowning" edge upwards, and those over so many feet in length are to be "worked crowning" so many inches before being placed in the building. Describing the partitions—a most important item of a framed house—the specification directs that "all door and window studs are to be set double, and all openings over 3ft. wide trussed overhead. All angles must be formed solid by blocking and spiking two studs together. No studs are to stand on the floor, nor on the joists, if there are partitions under, but all are to foot on top of the partition-plate below." The outside of the external partitions, and also the roof, is covered with ⅞in. match-boarding, called "sheathing," which has to be "nailed at each edge at every bearing with 10d. nails." Nails throughout the specification described as so many "penny" ones—a nomenclature common also in Ireland. The whole exterior is then covered with waterproof felt, the joints lapping 2in., and it is tarred under all architraves, friezes, cornices, brackets, &c., "so as to make a perfectly tight job." Outside this felt comes the finish, which is actually seen, which on the partitions is weather-boarding, or, as it is called in the States, "clapboarding." This is to be of "clear, dry, bevelled, white pine, 5in. in width by ½in. thick at the butt, and $\frac{3}{16}$in. at the thin edge, laid with not less than a lap of 1½in., and nailed with 8d. box nails every 16in. The nails to be set in." The verandah floor is to be constructed with 1¼in. by 3½in. white pine boards, laid with "paint joints." The roof is generally covered with shingles, and so also are the gables and other features. The shingles are usually of cypress, which grows abundantly in the swamps of New Jersey and the more southern States. The logs are floated down the river to the various mills, where the shingles are cut in enormous numbers. One mill cuts 300,000 daily. They are about 18in. by 6in., and are fixed on battens, with on roofs 5½in. to the weather, and on vertical parts 6in., each nailed with two nails and kept 3in. from angle of valleys. Sometimes the roofs are of slate, and frequently they are flat, in which case they are mostly covered with tin, although asphaltum or gravel composition is sometimes used. In either case the roof is boarded on the joists with ⅞in. boarding. Coming to the floors, pugging—or, as it is called, "deafening"—is used to all the best rooms, and these have also a double floor—a rough deal one and a hardwood finished one, with between them a layer of "all-wool, Pyramid-brand, rosin-sized, deafening felt," fixed down by 2in. to ½in. slips, to which the hardwood floor is secret-nailed. The rough floor is described to be fitted carefully round all studs, &c., up to the sheathing, so as to prevent mice circulating. Here is a good clause—"All the plastering is to be finished, cellar cemented, and all mason work done and thoroughly dried through before any of the interior joinery is brought into the building or put in position." The materials used for doors are required to be thoroughly seasoned and kiln-dried, and on the plans the sizes for both width and height are figured. Sliding doors are much used, while many openings have no doors at all; these would be provided with curtains, which give the desired privacy. There is no question of "draughts" in an American house, which is warmed equally throughout. All the doors have a hardwood slip ¾in. thick, splayed each edge, fixed under them. This enables the door to open clear of carpets, &c. The windows are mostly double-hung sashes requiring no special description. All are directed to have a burglar-proof fastening. After a description of the stairs most minute directions follow for the fittings of the various pantries and closets upstairs and down. These include clothes-closets, linen and china ditto, and butler's and kitchen pantries, as well as the various store-rooms. Then we get a full description of the refrigerator and ice-safe, which consists of two thicknesses of boarding, 2in. apart, filled with mineral wool, then an air-space of 1in., and a layer of rosin-sized waterproof paper, the actual inside being of clean, narrow-matched spruce. The lower part is the iron-safe or tank, and it is lined with sheet zinc, and the bottom covered with a wood grating to prevent the ice cutting the metal. The doors of these spaces are constructed in precisely the same way, and the joints between door and frame are double rebated. The wood finish is described to be first a certain patent "mineral filling," and then another "patent transparent wood finish." The hardwood floors are to be done in the same way, but with a "vegetable" filler. The tinwork is to be painted two coats of metallic paint, and here I may say that this tin—or to speak more correctly tinned iron — is used wherever we use lead, and also for the rain-water pipes and gutters. Lead is too expensive, and is also more affected by change of temperature. The hot-air ducts from the surface in the basement are also made of tin, and are run up in the partitions. The hot air is delivered into the rooms through a sort of hit-and-miss grating, called a "register." The positions of these are shown on the plans. Coming to the plumber's work, the soil-pipes are invariably of cast-iron, the joints being made with oakum and lead well caulked. They are painted on the outside with two coats of metallic paint, one before and one after fixing. Inside they are coated with coal-tar, or the pipes are "Mott's enamelled soil-pipe, not less than $\frac{3}{16}$th thick." The soil-pipes are kept well within the building, the water-closet apparatus being away from, and not next to, the outer walls. The siphon intercepting the drain from sewer is fixed within the cellar, and the drains, generally, in fact, are inside, and not outside, the building, so as to be clear of frost. The water-pipes are of lead, all so arranged that they may be run dry—also to baffle Jack Frost—and laid on wood strips or in wood troughs. And here occurs another very practical passage: "The plumber is not to cut any timbers; that will be done by the carpenter, and he shall not cut any to weaken them." Would that we could enforce that clause on both plumbers and gasfitters! Joints (lead to iron) are made with brass ferrules soldered to lead and caulked to iron as before described. The whole of the drainage has to be done according to municipal plumbing regulations, which are very strict. They often require that all soil-drains, as well as the vertical pipes, shall be of heavy cast-iron, and in all cases that the soil-pipes shall be carried through the roof full size, and left open at top, and that an air inlet shall be provided on the house side of the intercepting siphon. Also, that all sanitary fixtures shall have a trap as close to them as possible, each of which must have a back air inlet to prevent siphonage. Brass piping is sometimes used for hot-water connections, but galvanised wrought iron is much more common, and seems to be equally satisfactory. As to the cost of these frame-houses, one of the buildings illustrated is shown to have cost 2,935dols., or £587. This is a small house. A friend of mine writes to me that he is just about building a ten-roomed house, which he says will cost from £700 to £850, and he puts the life of this as at least fifty years. A very small house illustrated and described in a local paper is said to cost only 1,500 dols., or £300. In conclusion, I will quote the dedication of a book of designs of houses of this class. Prose is evidently too feeble to properly commend the subject, so the book is inscribed:—

> "To those who happy homes have always known,
> To those who plan and work such homes to own;
> To all who building homes would bless mankind,
> To all who in their homes a refuge find;
> To youth, whom wedded life will soon employ,
> To children dear, each day their parents' joy;
> To all who favour honour, truth, and love,
> To all whose virtues promise homes above.

Mr. Owen Fleming, in proposing a vote of thanks to Mr. Brodie for his paper, observed that it did not seem that the substitution of stained and varnished surfaces for paint in all internal woodwork would be so effective and pleasing as the lecturer appeared to regard it. The paper had been almost exclusively confined to matters of planning and construction; but some of the designs on the walls only showed us what to avoid in elevations, although others were quiet and satisfactory in treatment. In the better class of designs hung, the idea of the architect was evidently to provide a building as simple as possible, with long, unbroken lines of wall and roof in one plane. He believed that if architects followed this plan they would get a better effect than if a design were covered with stuck-on features. More simplicity was needed in our designs. Other good features in American frame-houses were their simple proportions and their plain details.

Mr. Horace Townsend (who, it will be remembered, read a paper on "The House that Jonathan Builds" before the Association on March 20th last) seconded the vote of thanks, remarking that he had practised for twelve ye as an architect in the United States. He p tested against the hits in the paper at Ameri fussiness and anxiety for picturesqueness, as th failings, although visible perhaps in some of illustrations in American professional journ were not characteristic of American architect and it should be borne in mind that s of the best architects in the States decline allow their works to be illustrated in th journals. The great fault of the leading Ameri architects, in his judgment, was a straining a an artificial simplicity, which was an affecta almost as objectionable as over-fussiness. foremost American architects took as their mo of the comfortable house the old Colonial bu ings, which were entirely of wood, simple character, and influenced by the Classic can The great use of tinned or "terne" iron roofs was a very conspicuous feature; material was cheap, it lasted, if looked after painted, a good many years. The refriger was a feature of every American house of size, and was not only used to produce i water, but was absolutely essential for freez meat and even vegetables. It was a mist it had been found, to build a refrigerator the house, as it became "smelly" in a years, and had to be renewed. Of course the was put on the top, the cold striking downwa The provision of a hardwood sill to each door an excellent invention. Mr. Brodie had allu to Messrs. Palliser, an energetic firm of p lishers, who were endeavouring to popula architecture by issuing plans of all kind buildings, a complete set being sold for 2s 3s. The estimates of cost Pallisers gave ha be accepted with very great reserve, as they v invariably from 20 to 25 per cent. below the ac value of the work shown on the plans. Revertin the usual American house, he might remark the kitchen was always well fitted, and se also as scullery. The sink was much de than in our houses, preventing splashing; an the washing was done at home, a series of t large tubs were built in, each from 18in. to 2 in depth, having sloping sides and grated out and provided with hot and cold water t Such an arrangement might with advantag introduced into the smaller English houses. protested against the usual attempt to t American architects as promising child They needed no patronage and no good-natu half-hearted praise from English critics, for were well able to take care of themselves, an some respects were ahead of their En brethren.

Mr. F. T. W. Goldsmith thought the g feature of American house architecture was clever way in which the plans were arrang economise labour and promote the convenien the occupier. Cupboards in every room, water carried all over the house, and every d down to the hanging of the doors, spoke c endeavour to meet the requirements of the cl The reminiscences of old Colonial work were apparent in the better designs, and often a d Classical detail, as in balusters or columns, a piquancy to the whole. Mr. Golds championed the open fire as far more ple and comfortable than the best system of war by pipes, and suggested that in a house he by the latter method there must be a great ri cold air rushing in every time the door opened.

Mr. F. R. Farrow said while these wo houses were cheap and easily built, they inv great risk of fire. He also advocated the l lish open hearth as more comfortable than ducted heat for a climate like ours, wher temperature was never very low. Two str features of American houses were the attention paid to all internal details and concentration of decorative effect on ce points, the general surface being left pla act as foils. Much care was also take American architects to secure an alternati texture of wall surfaces. The effect of st woodwork as contrasted with the paint so in English houses, might be seen by a vi Professor Herkomer's studios at Bushey.

Mr. W. Henry White referred to the va ness of American specifications as contrasted our own.

Mr. J. W. Penfold, past-president, obj to the practice of planning w.c.'s near the ce of houses. Mr. J. A. Shaw remarked tha "terne" roofs, however unsightly, wer soundly welded together as to be thoro

er-tight. Mr. E. Woodthorpe inquired if fires were kept going all night throughout winter.

The President, in putting the vote of thanks, erved that Americans were so outspoken in ir criticisms of English methods that Mr. vnsend ought not to deprecate a free examiion of the methods of building. He thought re was little danger of an inrush of cold air a house heated by pipes, as the air in such a se, if the doors and windows closely fitted, under pressure, and was more likely to rush

Mr. Brodie, in replying, said all American ses were not unduly simple in architectural itment: some that he saw were fussy to a ree; others, on the other hand, had aped plicity, and overdid the effect in ostentatious nness. The President's explanation of the air being under pressure was correct; but, her, there were double doors and inner ies to halls, and when the cold was in- e, a second porch, packed away in the cellar ing the summer, was erected outside during winter. The sashes were also double hung. great reason for staining rather than paint that very beautiful figured woods were loyed for joinery and woodwork, which it manifestly wrong to cover up. An American se could not be reproduced here owing to the nibition of such construction by local authori- . He received a commission last year from American for a house to be erected on the mes-side, but was unable to find a site which client liked where the local by-laws were not nibitory. In the States, houses of this conction were almost always isolated. They e not so inflammable as an English house, as e were no fireplaces, and the floors were fire- of. The w.c.'s were placed in the bath- n, the apparatus being invariably put against inner wall for protection from frost. Of se the fire was kept going all night during re winters, the stoking being generally nded to by a negro boy.

PORTLAND CEMENT.

T the second ordinary meeting of the session of the Institution of Civil Engi- s on Tuesday, the 17th of November, three rs were read relating to Portland cement Portland cement concrete. The first was rtland Cement: its Manufacture, Use, and ting," by Mr. Henry Kelway Bamber, F.I.C. author gave analyses of the most suitable s and chalk to be used in the manufacture 'ortland cement, and described the process of aring and mixing these ingredients, drying resulting slurry, and of burning. The age composition of good cement was indi- d. In these operations care and constant nical testing were necessary to keep the edients in proper proportions, so as to insure regular percentage of each in the finished ent. Reference was made to the packing in kilns of the dried material in lumps of a size oo large to prevent the heat from being evenly ibuted through the entire kiln, otherwise e would be a large proportion of insufficiently ed and unclinked produce. In clinkering, material entered into semi-fusion only, and it during this process that the properties of cement were produced. Given, therefore, er proportions of ingredients and proper ing, so as to obtain good clinkers, the result ld be good cement. This had next to be nd to fine powder and sifted, so that all ld pass through a sieve of 2,500 meshes to square inch, and not less than 90 per cent. ld pass through a sieve of 5,625 meshes to square inch. The finer the cement the easily was it thoroughly mixed with r, which insured its proper setting with- the chance of blowing afterwards. About of water should always be used to y cubic foot of cement. This would e that every portion of cement should the full quantity it could combine with, and is were done no blowing could take place, use blowing was caused by portions of cement g up water and expanding after the body e cement was set. The author made exnents three years since with concrete com- l of 4 parts of shingle, 2 of sharp sand, and cement. These were mixed in duplicates, irst lot with the full quantity of water it l take, and the others with only half that quantity of water. These blocks after 24 hours were put on a wall and were covered twice every day for twelve months by the tide. At the end of the year they were cut through the centre. Those made with the full quantity of water were sound, hard, and perfectly dry all through; those made with half the quantity of water were wet through, and easily broken to pieces. As there was no difference in any of the ingredients except the quantity of water used, this showed that for concrete to set properly and satisfactorily it must at the outset have the full quantity of water mixed with it. These blocks were made with new cement a day or two old, showing that new cement was perfectly safe if mixed in proper proportions. In the ordinary course cement would be about a month old when used, and there was no advantage in keeping it longer, for it began to lose its power of combining with water, an old cement not being able to absorb and combine with nearly so much water as new cement. In newly-ground good cement the particles were in such a molecular state as to quickly combine with water, forming a hard permanent crystallised solid. By age there was evidently a molecular change gradually taking place, for after a time the cement, although not exposed to the air, lost its power of setting when mixed with water, although the percentage composition might be exactly the same. The author then described the best test to determine if the cement were good:—First there should be a chemical analysis to show the proportions in which each constitutent existed, but as this in itself was not sufficient to show if the cement had been fully clinkered, he recommended the taking of the specific gravity which should not be less than 3·10 to 3·15 at the end of a month. This was much more reliable than the ordinary use of the striked bushel, which varied considerably, according to the way in which the vessel was filled. Then ensued the mixing of the cement with water and the forming into briquettes to test the breaking-strain at 7, 14, and 28 days; the quantity of water in these briquettes varied with each manipulator, the general desire being to use as little water as possible. The author thought, however, that it should be stipulated how much water should be used in making the briquettes, when the results with the same cement would be more uniform, for a cement that could not take up its full quantity of water, 20 per cent. to 25 per cent. of its weight, was not as good as one that could do so, other things being equal. A good cement, not too old, would expand in setting and completely fill the space allotted to it, whereas an old cement would not do so, and consequently spaces would be left for water to enter and weaken it.

The second paper, by Mr. Alfred E. Carey, M.Inst.C.E., was entitled "The Inspection of Portland Cement for Public Works." The author emphasised the following points: Uniformity of the raw materials; completeness of the mechanical blending of the raw materials; the proportion of carbonate of lime; the thoroughness of the wet-grinding; the burning; the flouring; the aëration and packing of the finished cement. Particulars were given of the chemical analysis of various clays in use, and it was pointed out that the hydraulic factors were the silica and alumina, with iron, and that the highest standard of quality was probably attained when the ratio between these was $\frac{\text{Lime}}{\text{Hydraulic factors}} = 2$. The various processes for the mechanical blending of the raw materials were described, and special stress was laid upon constant chemical testing at this stage of manufacture, and also on the thoroughness of the blending in a wet state. In regard to burning clinker, the author traced the various chemical changes which took place, and the corresponding temperatures. He considered that a temperature of about 2,900° Fahr. maintained for a short time only, was the most favourable for producing high-class clinker. He described the more recent systems of burning cement, giving details of the Ransome and Joy processes, and advocated the adoption of the test by specific gravity instead of by weight per bushel. He proposed for this standard 3·1, a high specific gravity combined with extreme fineness, being one of the surest means of proving that a given sample of cement was well burnt. In respect of fine-grinding, it was pointed out that it was the flour or impalpable powder which formed the effective part, the nibs or course residue forming an adulterant similar to the admixture of a corresponding proportion of sand. This was proved by a series of experiments, in which the residues, on a succession of sieves, were removed from a given sample of cement, when the tensile strains were proportionately increased. The question of the dry-grinding and the temperature of the cement, as it left ordinary millstones and edge-runners respectively, was then referred to. The author considered aëration essential with cement as now usually manufactured. With regard to packing, the want of a less expensive and more efficient packing case than the ordinary cement barrel was mentioned. The author suggested that for foreign works clinker might sometimes be conveniently exported and ground on the spot. As to the question of testing, he considered that a test of $\frac{1}{2}$in. by $\frac{1}{2}$in. section would in some cases be a useful guide, and described the various apparatus now in use for the purpose of compression-testing, calcimeter-testing, taking specific gravity, &c. On the question of standard regulations, the rapid progress which had been achieved in quality in England, despite the absence of any Government tests, was pointed out, and it was stated that, had such a standard been formulated ten years ago, its effect would probably have been retrograde. The practice of foreign governments and societies as to standard tests was detailed, and a specification was given applicable to the present stage of cement production. Minute particulars of the various points to be noted in gauging briquettes were given, and the subject of the adulteration of cement was dealt with. The author did not believe adulteration was much practised in this country, although the Society of German Cement Manufacturers had thought it desirable to formulate special rules on the subject as regarded Germany. In dealing with the use of cement, the author stated that, in his opinion, cement and concrete were likely to take the place in many respects of iron and timber as now applied. He also gave particulars of a series of experiments carried out by Mr. Joseph Cash, M.Inst.C.E., at his request, in order to test the power of Portland cement to resist long-continued hydrostatic pressure. These tests were made with concrete of varying proportions, and a further series was carried out to ascertain the extent of the penetration of cement on the surface of a mass of rough concrete. Another series dealt with the question of the extent to which rough concrete would prevent filtration. The efficacy of rendering a surface of concrete in connection with hydrostatic pressure was also discussed. The quantity and purity of water for concrete making was referred to, the author detailing the results of the admixture of fine river-mud of varying proportions on the strength of concrete blocks. The effect of the presence of sulphuric acid as observed by experiment was given, as also the effect of frost upon cement briquettes and *per contra* of high temperatures such as prevail under tropical conditions. The effect of sea-water on the maturing of concrete was dealt with, the author considering that when gauged with sea-water concrete matured more rapidly and passed more quickly into the crystalline condition than when gauged with fresh water. The limits within which concrete might be safely applied, more especially on works in the sea, were defined, it being shown that two distinct issues had to be considered in dealing with this much debated subject:—1. The influence of magnesia as an ingredient in the manufacture of cement. 2. The alleged deterioration of sound cement when subjected to the action of sea-water. He showed that caustic lime or caustic magnesia were both harmful in cement; but that a high percentage of magnesia, when clinker was well burnt, was not necessarily deleterious. In dealing with the second branch of the subject, the author pointed out the desirability of Portland cement not containing more than 4 or 5 per cent. of magnesia, because this material was really an adulterant and not actively useful. He detailed particulars of a series of experiments with cement-sand briquettes of varying proportions, which had been exposed to long-continued tidal action without harmful effects, and gave the increase in the weight of these briquettes. He also referred to a series of tests with fresh-water, varying proportions of fresh and sea-water, and sea-water partially evaporated, it being pointed out that in situations in which ammonia might be brought into contact with concrete it was desirable to use fresh-water for gauging, and to

exclude cement containingiany considerable proportion of magnesia. The author's opinion was, however, that no conclusive evidence had been adduced to prove that the precipitates from sea-water induced disintegration of even fissured or porous concrete when sound cement was used. In conclusion, the author referred to the chemical and physical transformations of Portland Cement in setting, and the general chemical conditions under which Portland cement of the highest class was obtained.

The third paper read was on "The Influence of Sea-water on Portland Cement Mortar and Concrete," by Mr. William Smith, M.Inst.C.E., of Aberdeen. In the course of a discussion which took place at the Institution in the year 1886, the author, who was the engineer of Aberdeen Harbour, had stated that since the construction of the south breakwater at that place, in 1872, he had noticed "the disintegration of the surface of the concrete by the chemical action of the salt-water on the Portland cement." The softening and swelling of the concrete wing-walls at the entrance of the graving-dock induced him in the following year to refer the matter to the late Professor Brazier, of Aberdeen University, for a thorough investigation of the chemical reaction causing disintegration. In June, 1887, that gentleman gave his opinion that the analyses of the series of decomposed cements (concrete) showed a remarkable difference in composition from the original cement, inasmuch as in all the samples submitted to him there was found a large quantity of magnesia, and a large proportion of the lime was in the form of carbonate. He believed that this alteration was brought about entirely by the action of sea-water upon the cement. There was no other source for either the magnesia or the carbonic acid. The author then reported that "the rapidity of the chemical action was due to the unbalanced pressure of the water on the wing-wall" when the dock was emptied. This caused a current of sea-water through the porous structure of concrete, which continually washed the decomposed cement into the dock, and brought new particles of concrete into contact with the sea-water. In July, 1887, Mr. P. J. Messent, M.Inst.C.E., was requested to make an independent investigation of the cause of the deterioration of the concrete, and in the following November issued a report confirming the results obtained by the author and Professor Brazier, by experiments at the Tyne Piers and by additional analyses of the disintegrated concretes by Mr. Pattinson, the public analyst for Newcastle-on-Tyne. From a series of experiments and investigations by Professor Brazier and himself, the author inferred the cause of the expansion of concrete, subject to the influence of sea-water, to be the formation of a more bulky compound of magnesia and lime with carbonic acid, and especially with sulphuric acid and water, in place of the lime of the cement. The chemical equations for the action of the lime in the cement upon the magnesian salts in sea-water were: Magnesia chloride + calcic hydrate = magnesic hydrate + calcic chloride. Magnesic sulphate + calcic hydrate = calcic sulphate + magnesic hydrate, the sulphate of lime crystallising with water as: Calcic sulphate + water = hydrated calcic sulphate, a substance of great bulk compared with the lime base. The lime of the cement took up the free carbonic acid from the sea-water, forming carbonate of lime; the sulphate, carbonate, and hydrate of magnesia in the sea-water were filtered out and united with the lime, forming a deposit of magnesia and hydrated sulphate of lime, which, being bulkier than the lime base, caused swelling and disintegration of the concrete, while the magnesia destroyed the adhesive power of the cement. The author proceeded to point out, from experimental tests carefully made, that the presence of magnesia in the cement, before mixing with water and setting, was not the cause of subsequent disintegration, and that even 5 per cent. of magnesia in the cement only diminished its tensile strength 20 per cent., causing no tendency to disintegration. Sulphate of lime and carbonate of lime might similarly be present in the unslaked cement without much harm or any tendency to subsequent disintegration of the concrete. The disintegration was clearly due alone to the chemical reaction between the sea-water and the lime of the cement. All the lime (about 60 per cent.) of the cement was, so far as affected by this action, quite free, there being no stable chemical combination of the lime, alumina, &c., in cement. A series of experiments on the filtration of sea-water from a height of 24ft. through porous blocks of concrete was given in a tabular form in an appendix, showing, by the gradual decrease of the quantity of water passing through, the closing up of the pores of the concrete by the accumulation of the chemical by-products in the material. The paper concluded with a description of the effect of the compression of air by the inflow of sea-water to cavities in the breakwater in bursting out the concrete blocks forming the sides of the cavities. The conclusions arrived at were: That the chief causes of the destruction of concrete sea-works were the chemical action of sea-water, and the sudden compression of air within the structure by waves; and that the same remedy applied to both evils—viz., the formation of an impermeable homogeneous structure.

MODERN EGYPTIAN BUILDINGS.

AT the Royal Institute of British Architects on Monday evening, a paper on "Modern Egyptian Buildings," with special reference to the erection of Mena House, near the Pyramids of Gizeh, read by M. H. Favarger, of Cairo. Limelight illustrations of the work were shown. Mr. J. MacVicar Anderson, the President, occupied the chair. M. Favarger remarked that when the Suez Canal was opened the Khedive Ismail had a road made to the Pyramids of Gizeh and two houses built, one on each side of the road. The one on the lower ground, to the north of the monument, was sold by the present Khedive, and, being purchased by an English capitalist, formed the central point round which had been grouped the various buildings forming the hotel known as "Mena House." Towards the end of 1888 M. Favarger was commissioned to add a dining-room and more bedrooms; and in May, 1889, some fifty other bedrooms and reception-rooms were to be added. Plans were prepared, and tenders invited from contractors in Cairo, for the small amount of work first decided upon; but the prices seemed so high that it was determined to engage native workmen and make the work under supervision. A young Swiss who had had some experience of building in Egypt was engaged as clerk of the works, and the work commenced. The stone for the rubble-masonry walls was taken from a large unfinished building which was built of stone and mud. The larger work, in the following spring, necessitated the collection of a stock of stone, and permission was obtained to use the débris of stone around the Pyramids. Erroneous statements had been made that the Pyramids were being stripped of their casing to enable the hotel to be built, and the author took the opportunity to explain the actual facts. The museum authorities, under whose control all the old Egyptian monuments were, refused to allow a single workman near the Pyramids, but employed their own men to clear away the rubble from certain points that interested them, and, after it had been searched for inscriptions, certain portions were allowed to be taken away—an arrangement that gave absolute security that the monuments would not be injured. When making the greater additions to the house, it was decided that they should be at right angles to the old buildings and their southern face become the main frontage. A carriage-drive from the road led to the main steps, and, passing through a large wooden verandah, the visitor reached the entrance leading into an antechambor, and then to the hall, with the staircase some distance off. The drawing-rooms faced east, and the library south, while westward was the staircase, placed so as to serve, with its alternate landings, the several floors, first to the east and then to the west. The billiard-room was built outside the house, top-lighted, and connected with the card-room by arches in the main wall. Moule's earth closets were used, but in a separate block from the house, approached on each floor by a roofed bridge opening out of the lavatories. The bedrooms were divided into tiers of three, each tier being half a flight higher than its neighbour, with the English single-leaf door instead of the French double door. The elevation was simple, and the labour being only Arab, rubble ashlar, unplastered, was selected, as being the nearest to the usual native style of work. While these works were in progress stables were erected on the opposite side of the Cairo road, which could accommodate over 150 animals; and a large open-air swimming-bath and a steam-laundry were constructed. The water supply was derived from a well on the ed of the desert. In 1890 further additions w decided on—among them a house to serve as estate office, and eventually as an annexe to hotel. This was built of sun-dried bricks, a consisted of six rooms on the ground floor, w eight bedrooms and offices above. A foundat of rubble masonry was carried up 3ft. above ground, and on that were built the walls of first story, to the thickness of nearly 3ft. T settlement was considerable, but so even that only harm was that the plastering of the v came down. In the design of the dining-hall Eastern Saracenic architecture was adapted modern requirements. The hall was to be a f ture of attraction, and, while providing with co fort for about 100 persons, was to be capabl accommodating 250 persons. Two levels, the fore, were given to the room, the main ro having a raised corridor round it, which g great scope for the introduction of arches. T four principal arches of the main room form the special feature of the hall. The author p ceeded to describe the vestibule and the ro and then turned to the various styles of build in Egypt. Firstly, the mud buildings, wh were constructed of mud bricks dried in the s the binding material being also mud. This m a warm, comfortable house, and the settlem though considerable, was even. Secondly, st and mud building, which was a favourite met with the Arabs in districts where fuel for mak lime was not easily to be obtained; and it surprising how long such buildings lasted Egypt. Thirdly, rubber-ashlar buildings stone and lime, with courses of bricks every to give a fresh level to the work and equalise pressure on the walls. Having dealt with qualities of limestones, lime, sand, timber, other materials to be obtained in Egypt, Favarger turned to the question of labour. workmen were almost entirely Arabs, dire by European foremen. Among the Arabs a clever and intelligent masons and carpen were to be met with, but the majority were dolent and ignorant, and difficult to deal w For rough labour, the Arab was not unsuita properly supervised. Of plumbers there a sad lack. Blacksmiths and engineers v fairly intelligent, and were generally Ital or Germans. That good work could be d however, was evident by Mena House b an accomplished fact, but it was hardly crec the amount of supervision which was necessa

On the motion of Mr. R. Phené Spiers, secon by Mr. Thomas Henry, the customary vot thanks was accorded to the lecturer.

CARPENTRY AND JOINERY.—XL

ENTABLATURES AND PEDIMENTS.

WE come now to treat of entablatures order to make them a step to pedime The use of the term "entablature" for this of door finishing is probably not techni correct, but it is very commonly used, because of that, is adopted here.

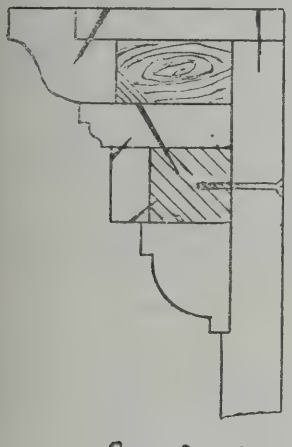
Fig. 275 gives a very simple kind of enta ture indeed. It is very slightly modified the section of a pediment taken from a cou mansion. It will readily be understood tha section given would be suitable for the pedi so far up as to the ogee or top moulding, w is seen to be rebated for the covering be The top moulding would take the sloping tion; following the outline of the tympanu triangular panel of the pediment, but this w dealt with anon. By looking at Fig. 275 seen that what forms the groundwork of entablature is the frieze or fascia.

The remarks made about Fig. 270 will a here also in case of valuable timber being u Pine, of course, will serve where it is seen. Let this be understood throughout, applies to mouldings forming the section as as to the fascia. The various mould required to build up the entablature will no prepared. Just by way of preparing these, viding that for the joiner the foreman has down an outline or section similar to Fig then a tracing on paper (tracing) will be ta and as previously stated, the writer's practi to use carbon paper for transferring this t veneer, which is to be cut out as a patte template of the section of the moulding. If a small quantity of the moulding is require may be wrought by hand, in which case template will be used in making the ends o

iece of timber prepared for the moulding, hich ends are usually chalked after being laned, so as to present a level surface for the arking. The pencilling shows out better on the alked end; but if the mouldings are prepared y machinery, several methods are adopted; one ractice is to work a piece of moulding of the equired section about 18in. or 20in. long of soft ine, and to this the machine man sets the irons of is moulding machine. Another is, in some shops, uitable irons are put in the revolving head used n the general joiner, and the ends of the pieces eing chalked and pencilled as for working by and, it can be readily seen how to set the re-olving head so that the iron shall fit the mould-ng, and thus passing the piece of timber over hilst the iron revolves the moulding is worked.

When this latter method is adopted, gauge nes are run on, so that if any defect occurs in ie working the moulding, it may be regulated ith a hollow or round (casement) of the required umber or outline. But, in addition, some achine men can grind the iron to work the oulding with by the veneer above stated, and etting the machine working a short piece for a mple, try the veneer to the end after it has assed through, and regulate if such is required. ll these methods are practised in different ops and in different places. The mention of ese several ways may help some either to follow originate a different method. And just a ttle in regard to the preparation of the details: ey are usually prismatic or oblong, though in

Fig 275



Scale 3

me instances they take other outlines, but in is case they are to be understood as prisms ith a square base; or, to put it more plainly, ey are square blocks of the length shown in the awing. They are first cut to the required ngth, and in cutting are allowed, say, ⅛in. nger than the finished size. Have a square it in the mitre-box, and nail a piece on the sole bottom piece inside, sufficiently far from the uare cut to suit your length; this serves for a uge. Cut a square end on the piece which as been prepared for the dentils, then push the iece along until stopped by the gauge, and cut gain; continue cutting until sufficient are cut.

Fig. 276 is introduced to show one method of etting over the difficulty which arises at the xternal angle of the dentil course or band. It ill be seen that it is by having the corner dentil n. larger each way, and rebating this out to fit ie corner of the fascia, otherwise there is seen n the right-hand side how it would occur. Of ourse, the latter, by extreme care, could be arried out; but the extra size, according to the est method, would hardly be noticed, except by practised eye. Sometimes a pine cone is carved id placed at the corner. This is a matter of ste and judgment; but to some it would not be tisfactory. Sometimes, again, a turned drop is troduced to get over the knotty point. And ill another method is to put a dentil just fair ith the angle against the front of the fascia, id another fair with the angle on the return of e entablature—that is, the two corner dentils will at right angles to each other, and the angle is ft vacant of either drop, cone or aught else. he reader and workman is left to decide which of all these ways he will take, or design a different one altogether.

When the dentils have been cut, the ends require to be planed, as one end, at least, is fully seen, and the other end is planed for sake of having them equal in length. In order to this planing, a box is made.

Fig. 277 shows the plan of the box required; it has neither top nor bottom—just ends and sides;

Fig 276

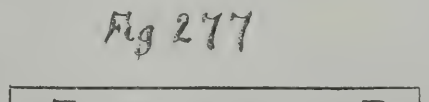


Scale ½

it is firmly nailed together, and the space between the sides is such as just to admit the dentil, and the distance between the ends sufficient to admit from 12 to 20 dentils, and a little extra room for wedges. It will readily be understood that the depths of the sides of this box will be a little less than the length of a dentil. Having placed in this box the dentils which are to have their ends planed, the space for the wedges is filled by driving a wedge from each side (for wedging), and thus they are tightened; now it will be readily seen that the dentils can be planed over without any risk of chipping them, providing the plane has been *set fine*, and a shaving or two taken off, say, at one end, and then reverse the end of the box and plane the ends straight through; turn the box over and perform a similar operation with the other ends of the dentils. Two of the dentils which have already had their ends planed may be used to guide the workman in planing the remaining portion of the dentils. By putting one of these at each end of the box, this will allow the joiner to plane straight through. Of course, he will only plane down to these guides without taking anything more off them.

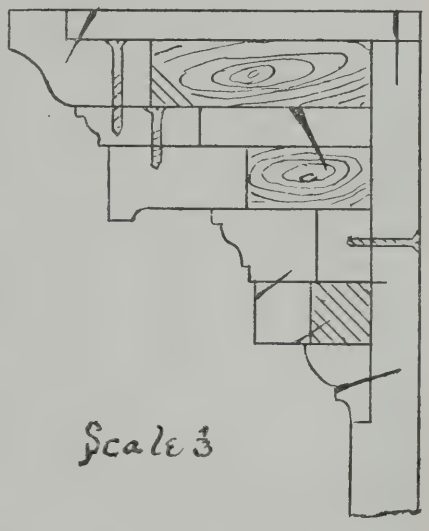
If the box has been properly made, the square may be applied off the side across the ends of the dentils in order to see that they are all right. This being done, and all in readiness for commencing to build up the entablature, we return to consider Fig. 275. Having the fascia, or frieze, ready, and the return ends mitred as shown in Fig. 271 in the preceding article, the ovolo moulding is fastened to, after having been mitred and fitted as previously described. In case that this ovolo is to be carved with egg and dart, it is very customary to do it in position; but sometimes the lengths are marked and the carving executed before mitring and fixing, except just at the mitres, which is done after fixing. At the corner, in case of carving, the acanthus leaf usually occurs to avoid the difficulty which presents itself. The frieze, or fascia, is often

Fig 277



carved, in which case the timber in it would be much heavier to provide against the cutting and sinking required; but sometimes a carving consisting of festoons of drapery is fastened to the frieze, either with needle points and glue or screwed from the back side, the screws entering the corving at suitable points, where they will not penetrate through. The filling, or backing, piece just immediately behind the dentils may be fitted and fastened. The fitting will mainly consist in mitring at the angles, and noticing that it beds closely to the fascia. It may be fixed either by screwing from the back or nailing from the front, and it may be glued, and if special workmanship is required it may be roughened with a toothing plane on the back. The moulding immediately above the dentils may be put in position now, and when mitred can be nailed as shown, either with screws or ordinary nails; in hard wood screws are by far preferable. This moulding should form a right angle with the backing-piece of the dentils, so that there will be no difficulty in putting them in. It will be noticed that the top member or moulding of the cornice is rebated to receive a light covering board, and that a joist, ground, or packing piece is shown supporting this. Joists or packing pieces may occur at from 12in. to 16in. centre to centre, and as the return ends are rebated just as the front, no joists are required at the ends, the return rebate serving, thus indicating that the joists are to be spaced equally between the rebates. Perhaps the simplest way to prepare the top moulding (ogee) is to mitre it at the required length, and also the return ends; then glue these ends to, and allow the glue to harden, and when that has taken place put in screws from above, so as to connect the pieces forming the mitres together. These screws should be put in from the top, where they are least likely to be seen. But if the top of the entablature will be seen, as is usually the case when descending the stairs and the entablature in the hall, then recourse may be had to putting the top moulding in its place on the cornice, which has been so far prepared for it, screwing it down through the rebate to the moulding immediately below, putting in the joisting pieces, and gluing angle blocks in

Fig 278



Scale 3

between these joists, and also one at each mitre, with the grain running vertically. Then the covering board may be fitted and fastened down with fine hooks.

The method of nailing is shown in the figure. There remains the dentils to be added; if they have been prepared according to instructions, the length having been taken from the sectional elevation, the joiner should have nothing to do but just brad or needle-point them in, as each one should fit exactly the space allotted. They may have a little glue put on the back and upper end of each. The space between the dentils is usually two-thirds of the length of one of them. The method of arranging the dentils at the angles has been treated of, as also alternative treatment, to avoid difficulty. The method of fixing an over-door was shown in the preceding article, and will apply to this.

Fig. 278 gives another outline for an entablature cornice which is rather more classic. No further instructions are required to build this, seeing that all joint lines are shown. It is not intended that these outlines should give definite ideas of proportion, as that will be best learned by the study of the different styles of Classic architecture, wherein the proportion of the various parts are laid down relatively, and the spacing of the dentils. We are now ready for adding on the isosceles triangle, which constitutes the simplest outline of a pediment; other outlines will be shown also. Some sketches of the usual outlines of pediments are contained in the BUILDING NEWS of the 23rd October, taken from the prize drawings of S. K. Greenslade.

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ILLUSTRATIONS.

LE LOGIS BARRAULT, ANGERS MUSEUM.—DETAILS OF THE NEW SOUTH KENSINGTON MUSEUM EXTENSION.—BUSINESS PREMISES, CORNER OF WIGMORE STREET.—ST. ANDREW'S CHURCH, EARLSFIELD.—WENTWORTH HOUSE, MILL HILL.—ELIZABETHAN FURNITURE FROM YORKSHIRE.—VALLE CRUCIS ABBEY.—RAPID RAILWAY TRANSIT IN AMERICA.

Our Illustrations.

THE LOGIS BARRAULT, ANGERS.

Angers, the capital of the Plantagenets in France, is in point of historic interest without a rival among the towns of the country. Revolution spent its destructive fury upon the place in almost unique and unequalled completeness. Four churches were demolished at a blow, to be replaced by the dreariest of squares; a hideous préfecture takes the place of one of the noblest abbeys of France, and gay boulevards have been erected on the site of "the flinty ribs of this contemptuous city," the walls which play their part in Shakespeare's "King John." In spite of new faubourgs, new bridges, and new squares, Angers still retains the impress of the Middle Ages: its steep and narrow streets, its dark, tortuous alleys, the fantastic woodwork of its houses, the sombre grimness of the slate-rock out of which the city is built, defy even the gay audacity of modern fitful France to destroy the character which comes of antiquity and the past. Angers is still worthy of the city of the counts. From Geoffry Greygown to John Lackland, there is hardly one who has not left his name stamped on church or cloister, or bridge or hospital. The tombs of the later dukes, it is true, have been removed and disappeared from the cathedral; and worse still, the churches have undergone a coarse and wholesale process called "restoration," till their life and soul as historical buildings have been driven out of recognition. The new streets are in the worst of modern Parisian taste, and the gems still existing as remnants of the past are generally located in the midst of the ugliest of surroundings. Turning round behind the Tower of St. Aubin, up the Rue de Musée, the visitor will find the subject of our illustration to-day. It is the splendid Renaissance palace built by Oliver Barrault, treasurer of Brittany and thrice mayor of Angers in the years 1497, 1504, and 1505. The place is now used as a museum; but it goes by the name of its builder, *Le Logis Barrault*. On the left of the courtyard is a beautiful Gothic cloister in the Latest mode of that style. with a florid tower of great richness and quaint proportions, inclosing a spiral staircase, which terminates in a beautiful ribbed vaulting above. After the days of Barrault, his home was converted into a Séminaire, and in the time of Louis XIV. the house was enlarged. In a dark hour, from an artistic sense, the building was "restored" about 1854. The museum has three divisions: the galleries of modern poor French paintings, redeemed in the sculpture gallery by Canova's grand bust of Napoléon I.; the Musée David; and the Cabinet Turpin de Crissé. The Musée David reminds one of the Thorwaldsen Museum at Copenhagen in its character. It is filled with the originals or casts from the works of the great local sculptor, David d'Angers, whose name it bears. The casts comprise those from the noble tombs of Bonchamps at S. Florent and of Fénelon at Cambrai. Behind the museum, and entered from its garden, is the beautiful ruin of Toussaint, dating from the 12th century, a miniature Tintern, and very English in style—it was an abbey of regular canons, founded 1115 A.D.

SELECTED DESIGN FOR SOUTH KENSINGTON MUSEUM BUILDINGS.

Although we fully illustrated Mr. Aston Webb's selected design for this great national work at the time we gave illustrations of all the competition designs,* his elevations of the main façades have not yet been published. We therefore now give them among our illustrations to-day. That of the Exhibition-road front also illustrates Major-General Scott's Science Schools, a work of uncommon merit, and copiously illustrated in detail by us in the Building News for Feb. 18th, 25th, March 3rd, 17th, and 24th, 1876. We understand that Mr. Webb is now preparing the working drawings for the new buildings.

NEW PREMISES AT THE CORNER OF WIGMORE STREET, W.

This handsome block of new business buildings has been erected at the corner of Wigmore and Wimpole-streets, not far from Cavendish-square, and forms one of the most noticeable recent additions to the street-architecture of West London. The façades are in stone, and the roofs are covered with tiles. At the corner of the two thoroughfares is a shop entered at the angle. Mr. Frank L. Pearson is the architect, and our illustration is taken from his Royal Academy drawing exhibited this year.

CHURCH OF ST. ANDREW, EARLSFIELD.

This church has been built from the design of Mr. E. W. Mountford, F.R.I.B.A., whose plans were accepted, if we remember rightly, in a limited competition. The drawing given hardly does the building justice. Red brick is freely used inside as well as out, with stone shafts to the arcades. A rich wrought-iron grille divides off the morning chapel south of the chancel. We illustrated the vicarage at Earlsfield from Mr. Mountford's Academy drawing in the Building News for May 8th this year. The site for both church and vicarage was given by the governing body of Magdalen College, Oxford.

WENTWORTH HOUSE, MILL HILL.

This house has been rebuilt on the site of an older one in a well-wooded and picturesque situation. The illustration shows the garden front looking south and over the valley towards Hendon. The materials used are Lawrence's red facing bricks with terracotta dressings. The hall and dining-room have been floored and panelled in wainscot. The modelling of terracotta and the small arch of brick carving were executed by the late Mr. R. A. Ledward. The house, with stables, lodges, greenhouses, &c., has been well built by Mr. T. Nye, of Ealing, Mr. Dewey being the clerk of works. The grounds have been remodelled and laid out under the direction of Mr. Milner. Messrs. W. E. and F. Brown are the architects. The drawing shown was exhibited at this year's Royal Academy.

ELIZABETHAN FURNITURE FROM YORKSHIRE.

The fine old Bedstead shown on our sheet of furniture this week is richly carved and inlaid with marqueterie work. Like the Great Bed of Ware, there is no footboard, the posts being entirely insulated from the bed, and merely sustaining the end of the canopy over. The carved feet to the posts are worthy of remark, being of an altogether unusual character. The square bases which support the balusters are very massive, and are panelled and rudely carved on all four sides; the balusters are enriched with scroll foliage and flowers. The headpiece is panelled with arched panels peculiar to the period, inlaid with various designs, and the pilasters have crude figures carved upon them. The canopy is richly panelled and also inlaid with marqueterie, and on the top is a carved figure of a dove with oliv branch, which formerly surmounted the sound ing-board of Bradford parish church. Th stamped velvet cover and vallance belonging t the bed are dated 1580. This piece of furnitur fetched £194 at Christie's, and belonged to th Hailstone Collection, which was disposed of b that firm. The Oak Buffet, from the same source is likewise richly carved and inlaid with blac and yellow woods, the inlay in the two doors lower cupboard being especially good. Unde these are two drawers with carved fronts, an under the shelf is a drawer the whole width. I the upper portion the cupboard is splayed off either side, the projecting top at the angles bein supported by two massive balusters with Ion caps. Altogether, this buffet presented a hand some appearance, nor would those who look fo utility be disappointed, for there is no wast space inside, and the capacious cupboards ar drawers would satisfy the most exacting house keeper.

VALLE CRUCIS ABBEY.

This beautiful old Cistercian abbey was founde about the year 1200 by Madoc ap Gryffyd Maelor, lord of the neighbouring castle of Din Bran, who was buried here. There is still muc of the abbey, which is mostly of Late Earl English character, and with a little imaginatio the general scheme may be made out. The ruin of the church are the most complete, of whic the west end is very charming, having an orn mented arched doorway, over which are thr lancet-headed windows, and rose window gable; part of the monastery buildings are no used as a farmhouse. Standing as it does in th beautiful and peaceful vale of Llangollen, wi the ivy clustering about its ruined arches, ar nearly surrounded by fine old ash-trees, it is most beautiful and picturesque object. Th following lines from an old Welsh melody ref to Castle Dinas Bran, Valle Crucis Abbey, ar Eliseg's pillar, an old cross or monument stan ing in an adjoining meadow:—

I passed by thy pillar, firm rooted, to waken
Long memory of chiefs that in battle had sunk;
But the earthquake of ruin its basis had shaken,
The voice of the thunder had shattered its trunk.

I passed by thy castle, once mirthful and splendid,
Its court was too truly an emblem of thine;
I passed by thy abbey, its worship was ended,
The ivy hung dark over portal and shrine.

W. Prince.

* These competition designs will be found in the Building News for August 7, 14, 21, and 28; September 4, 11, 18, and 25; and October 2, this year.

CHIPS.

A special meeting of the town council of Burton-on-Trent was held on Wednesday to consider offer by Lord Burton to present to the Corporatio for the purpose of municipal offices and assemb rooms, of St. Paul's Institute and adjoinin premises built by his father, the late Mr. M. Bass. The gift includes the organ and fittings of th great hall, the stage and annexe, and has bee accepted with thanks. The buildings cost £40,000

At the Pro-Cathedral, Kensington, last wee the Bishop of Emmaus solemnly blessed the ne tabernacle, erected from the designs of Messr Goldie, Child, and Goldie, the contractors of th building itself, at a cost of £180. The tabernacle composed entirely of metal, the iron safe beir inclosed in a covering of brass. The work, whic has been carried out by Messrs. Hart, Son, Pear and Co., of London and Birmingham, is of La 15th-century Gothic style. Statuettes of ange with extended wings are placed to the right and le of the gable.

The organ in the City church of St. Michael' Cornhill, was reopened on Sunday after reconstru tion by Messrs. W. Hill and Son.

The Palace Hotel at Inverness has just bee opened with a house-warming dinner. It is bui of freestone, and has a frontage of over 120ft., height of five stories, and contains over 60 apar ments. It has been erected within 6½ month Mr. R. J. Macbeth being the architect, and M William Alexander the contractor.

The new north aisle of the parish church Alrewas was opened and dedicated on Wednesda week. The new work has been carried out b Mr. R. Bridgman, from the designs of Mr. Bas Champneys, of London. Before the addition w made the building consisted of a nave, south aisl and chancel; other work has been carried out, ar the total cost will be £1,600. The wall on the nort side of the nave has been carried 22ft. furth north, and arches and columns, richly moulde were constructed to carry the roof, which is carved English oak. All the old stone and o material has been utilised. The whole of the sea have been re-made, and the flooring is of Acm wood blocks, by Duffy, of London.

HE ARBITRATOR'S AWARD IN THE CARPENTERS' DISPUTE.

) INCREASE OF PAY, BUT REDUCTION OF WORKING HOURS, AND ADVANCED PAY FOR OVERTIME.

[HE arbitrator, Mr. J. MacVicar Anderson, P.R.I.B.A., in the matters in dispute be-veen the Central Association of Master uilders and the carpenters and joiners of ondon, issued his award at noon yester-ıy (Thursday). The document narrates at nsiderable length, and in some detail, the eps which had led up to the arbitration, giving :e eight points of the memorial presented the Central Master Builders' Associa-on by the United Trades Committee of ırpenters and Joiners, which were, in fect, a demand for (1) a reduction of orking time from 52½ to 47 hours per week,) an advance of wages from 9d. to 10d. per our, (3) increase of pay for overtime, (4) an lowance for expenses to men sent to a distance om the shop or job, (5) the abolition of sub-tting and piece-work, (6) the providing in shops ıd on jobs of a lock-up place for tools, (7) of a ace for meals, and (8) one hour's notice and ıe hour's wages for grinding to be allowed on scharge. These amended rules were, if con-ded, to have come into force on May 2; but ing refused by the master builders, a partial rike against three representative firms took ace, replied to on May 23 by a general lock-out. compromise was offered by the employers on ıe 27th July, but, being declined, was withdrawn ı August 6th. On Michaelmas-day the carpen-rs asked that the President of the Royal ıstitute of British Architects would arbitrate, ıd at a conference held on October 12th both des agreed to submit to Mr. Anderson's :bitration the matters in dispute. Four repre-ntatives on each side, with the respective :cretaries, attended before the arbitrator on ct. 19, 22, and 27, and on Nov. 3, and evidence as also given by representatives of the operative asons, plasterers, and bricklayers. Having eard the arguments for and against the eight oints of the memorial, the arbitrator announces ıat he has come to the following conclusions :—

As regards Clause 1, the carpenters and oiners have established a claim for consideration ı respect to the present code of working hours : ıe abnormal size of London, and the great istances which workmen have to travel, render ıe conditions of London work exceptional and ifferent from those in any other town.

As to Clause 2, the carpenters and joiners have ailed to establish their claims for an increase of ay; the depression in trade, and other con-itions which tend to the advancement of cost, eing great. The recent strike and lock-out in ondon have led to a loss from which the men ill not recover for a long period, while the ifficulty which has been experienced in getting ork done has given an impetus to foreign labour. o increase the cost of building beyond the resent limits will tend to restraint of trade, and o bring disaster on all concerned.

Regarding Clause 3, it is reasonable that over-me should be paid at a higher rate than rdinary labour; but inasmuch as overtime is ften necessary, the rate should not be pro-ibitive.

Clause 4 of the memorial has been so amended s to include men sent into the country, and is greed to.

Clause 5 (prohibitive of sub-letting and piece-ork) has not been insisted upon, and I make no ule respecting it.

The remaining three clauses have been practi-ally agreed to, subject to certain modifications, nd are embraced in my award.

On and after the date of this award (yesterday) he code of working rules for carpenters and oiners in the London district shall be—

1. The working time, both in shops and on obs, shall be 51¼ hours per week for 36 weeks in ummer, and 47 hours per week for 16 weeks in inter, equal on an average to 50 work-ng hours all the year round. The hour or commencing work to be 6.30 a.m. for the 6 summer weeks, and 7.0 a.m. for the 16 winter eeks. The hour for leaving off work on the rst five working days of the week shall be 5.15 .m. for the 36 summer weeks, and 5 p.m. for the 6 winter weeks, except in the depth of winter n outdoor jobs, when it is to be 4.30 p.m. The our for leaving off work on Saturdays to be 12 'clock noon all the year round. Half an hour) be allowed for breakfast every working day, and one hour to be allowed for dinner on each of the first five working days of the week, except in the depth of winter, when half an hour only is allowed. The sixteen weeks of winter are to be reckoned eight on each side of Christmas-day.

2. The standard rate of wages in shops and on jobs to be 9d. per hour.

3. Overtime, when worked at the request of the employer, but not otherwise, to be paid at the following rates per hour :—From 5.15 p.m. in summer, and 5 p.m. in winter until 8 p.m., one shilling per hour; from 8 p.m. until 10 p.m., one shilling and threepence per hour; from 10 p.m. till the time of starting next morning, one shilling and sixpence per hour. On Saturdays, from 12 noon until 4 p.m., one shilling per hour, and from 4 p.m. till the time of starting on Monday, one shilling and sixpence per hour. No overtime to be reckoned until the full working day has been made.

4. Men who are sent from the shop to a job, including those sent into the country, shall be allowed as expenses one shilling per day for any distance over six miles from the shop or job, exclusive of travelling expenses, and allowance for time spent in travel.

5. Employers shall provide a lock-up place on jobs where practicable, and shall take reasonable precautions for securing workmen's tools, but without incurring responsibility in case of loss.

6. Employers shall provide, both in shops and on jobs where practicable and reasonable, some suitable place for the workmen to have their meals, a labourer to be provided to prepare the same.

7. Men who are in receipt of full wages, and who have been employed for 49 hours in summer and 45 hours in winter shall, on discharge, receive one hour's notice, to be occupied, as far as practicable, in grinding tools, with one hour's pay in addition.

The net result of the award is a reduction in time of 5½ hours for the 16 weeks of winter months in shops, and 1¼ hours in the 36 weeks of summer months; all round, an average reduction from 52½ to 50 hours for the working week. While the rate of pay is unaltered, the rates for overtime are increased, the chief gain to the men being that of 2d. per hour for the first two hours on full days, and double time from 4 p.m. instead of 5 p.m. on Saturdays. New features are the concession of a shilling a day as "expenses" (*i.e.*, pocket-money) for men employed over six miles from the shop, the provisions of a lock-up place for tools, and of a meal-room.

The London Master Builders appear gratified with the award as a whole, but the United Trades Committee express considerable dissatisfaction. Some predict that it will lead to further agitation among the allied trades. One or two representative men, on the other hand, express themselves as willing to take the award as an advance in the direction aimed at. The principle of the reduction of hours having been conceded, they assert that an upward movement in wages will be forced by the action of the other building trades. The arbitrator's award, however unpalatable to the men in respect to wages, will, however, be loyally submitted to by all parties.

BOOKS RECEIVED.

Forty Plates on Building Construction, by CHARLES F. MITCHELL, M.S.A., M.A.A., Lecturer on Building Construction at the Polytechnic Institute, &c., assisted by the Lecturers of the latter (London: Cassell and Company).—This series of plates, which can be obtained in sets for the different trades, has been prepared to assist students studying for the examinations in the elementary, advanced, and honours stages of Building Construction and Drawing of the Science and Art Department, and for the examinations of the City and Guilds of London Institute. They will also be valuable, we think, in offices where pupils are taken, and every architect would do well to have the volume before us. One merit of the drawings is that every part and detail is figured. Mr. Mitchell has been assisted by his colleagues at the Institute at which he is lecturer. The details given of brickwork show isometrical drawings of piers from one brick to three bricks, and their footings; every alternate course of bond is clearly shown, also the damp-course of hygeian rock or asphalte. The author shows the rule of obtaining depth and width of footings and concrete. Thus the area of footings should equal $\frac{\text{Total load}}{\text{Safe load on concrete}}$. Plates 2, 3, and 4 give varieties of English and Flemish bond, illustrated by large-scale plans of courses for walls at right angles, showing the closers at angle and stopped ends, from one brick to three bricks in thickness. Single Flemish bond, details of brick arches of various forms, chimney showing the arrangement of flues are given, these plates being revised by Mr. H. W. Richards' lecture on brickwork and masonry. The stone walls illustrated give uncoursed random rubble, coursed rubble, irregular course or "snecked" walls, besides squared rubble in courses, block-in-course, and ashlar walls with brick or rubble backing. Joggles, slate and metal cramping, are also indicated. Stone staircases are fully detailed and figured, in which the steps and landings and the rebated back-joints of the steps are shown. Modes of tailing steps supported on walls, joggled landings, and soffits flush and broken are detailed. In the carpentry section plans of single floors showing fireplace, trimming, methods of jointing floor-boards; plans and details of double-framed floors with wood and iron binders appear. Roofs and partitions with details and stress diagrams; a Mansard roof truss for a 30ft. span, with perspective sketches, are useful. Passing joiner's work, which has been revised by Mr. G. C. Pope, and is well done, we come to very useful details of plumbers' work, on which ridge rolls, flashing, lead flats, secret gutters, methods of securing lead to brickwork, stepped flashings to chimneys, are clearly shown. Iron construction of every kind, with figured details, drawn to a working scale of iron truss of 40ft. span, calculated by the author, and revised by Prof. H. J. Spooner, is very fully illustrated, and also girders to carry a distributed load of 25 tons, and drawings of a small town residence, showing a complete set of drawings, illustrating fire-resisting construction and sanitary details complete, making a work as completely illustrative of elementary construction as it is possible to be. Every student should have a copy.——*The Practical Telephone Handbook*, by JOSEPH POOLE, chief electrician to the late Lancashire and Cheshire Telephonic Exchange Co., Manchester, with 227 illustrations (London: Whittaker and Co.)—As a manual of moderate cost, this little book will be found to be fairly complete and practical. The author has studied the requirements of telephone *employés*, and for users of that instrument, as well as all who wish to obtain detailed information of the various forms of receivers and transmitters in use, and the different exchange systems, the manual before us is well suited. The illustrations are numerous and well drawn, and show every kind of apparatus, transmitters and receivers, batteries, signalling instruments, the chief kinds of switches and switch-boards; also the out of-door structures, such as standards for carrying the wires, trussed standards and arms, means for regulating the sag of the wires, and the systems in use known as the "twist" and "cross" systems for arranging the wires. The student of electrical appliances will find much general information on the theory and history of the subject of telephony in this little work.

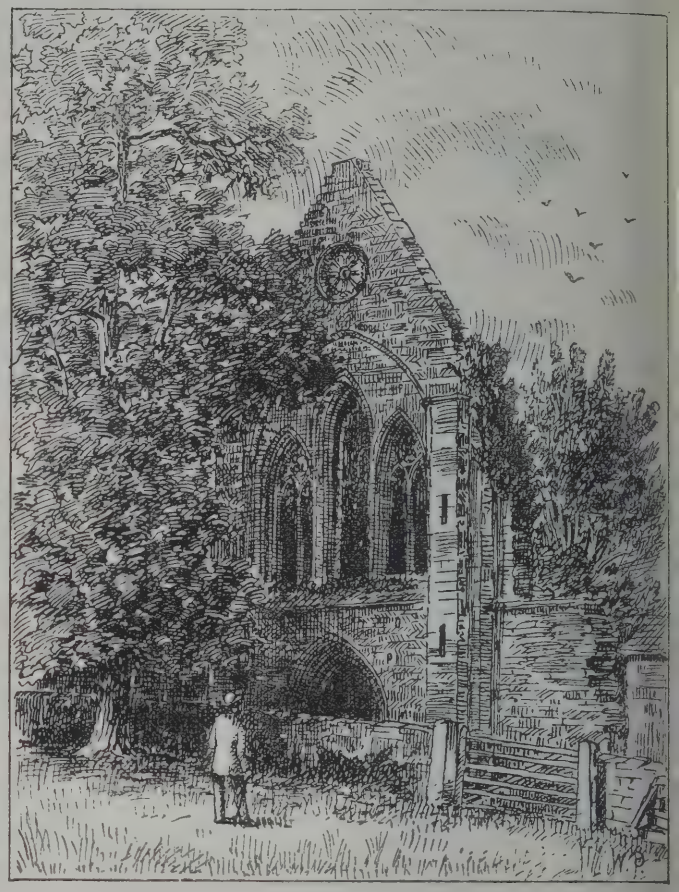
Councillor J. B. Corby, architect, Stamford, was on the 4th inst. duly elected a Fellow of the Surveyors' Institution.

A Methodist New Connection Sunday-school a Deighton, near Huddersfield, was opened on Thurs day in last week. It provides in the assembly-hal seats for 400 scholars; in addition there are five classrooms. Mr. J. Brooke, of Hindley, executed the masonry, and Mr. D. Light, of Cowcliffe, tho joinery.

To celebrate the opening of the new free reading-room at the Hampstead public library, a conversazione was held on Wednesday week at the library, Stanfield House, High-street. The room has been erected as a memorial, and was built by Messrs. Burford and Son, of High-street, from the designs of Mr. Horace Field, of Church-row, Hampstead.

Messrs. E. Miller and Co., Limited, Leeds, have had placed in front of their premises at the bottom of New Briggate, near the public dispensary, Leeds, a large illuminated clock, made and fixed by Messrs. Wm. Potts and Sons, clock manufacturers, Guildford-street and Cookridge-street, Leeds, makers of the Royal Exchange, Thornton Arcade, and New Arcade clocks, Leeds.

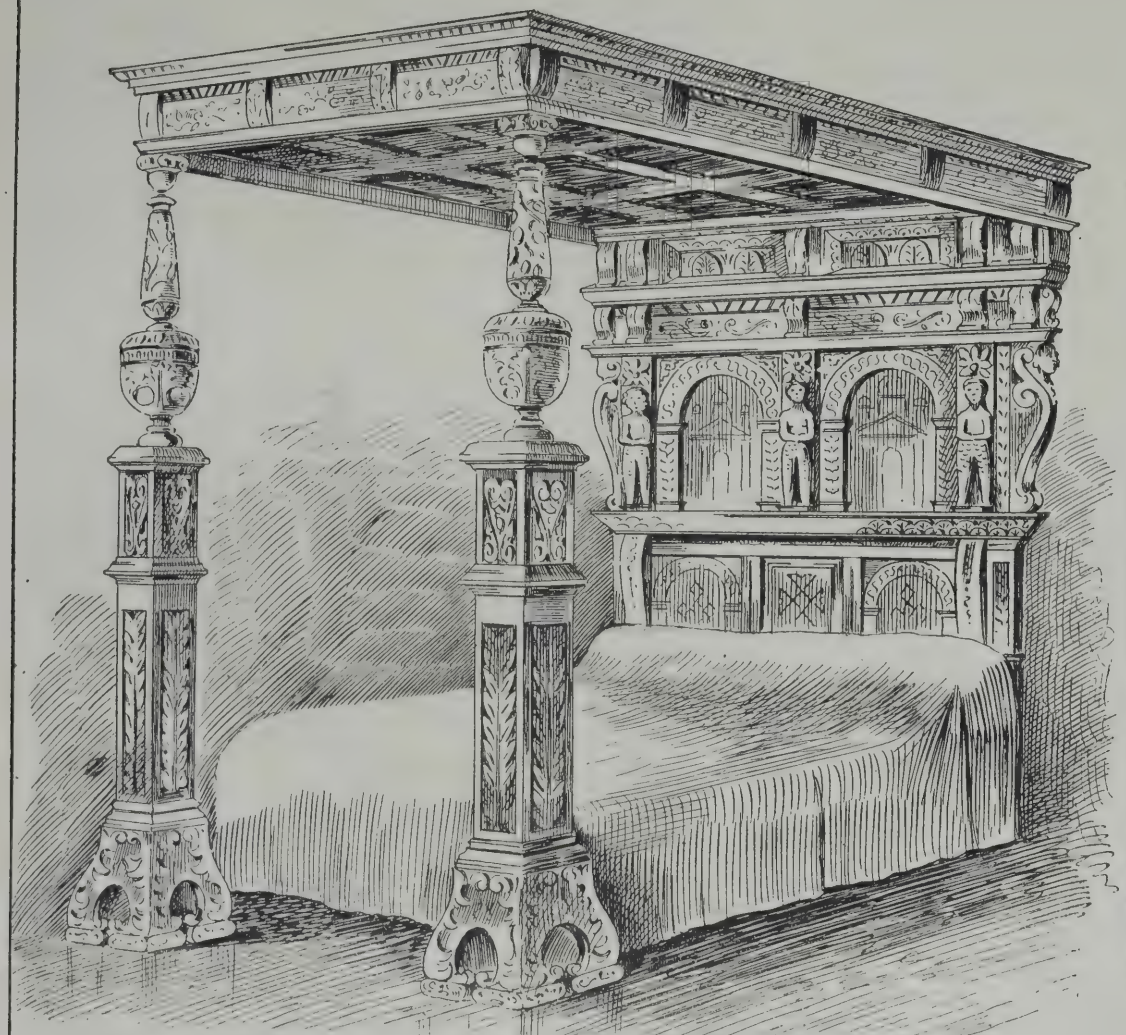




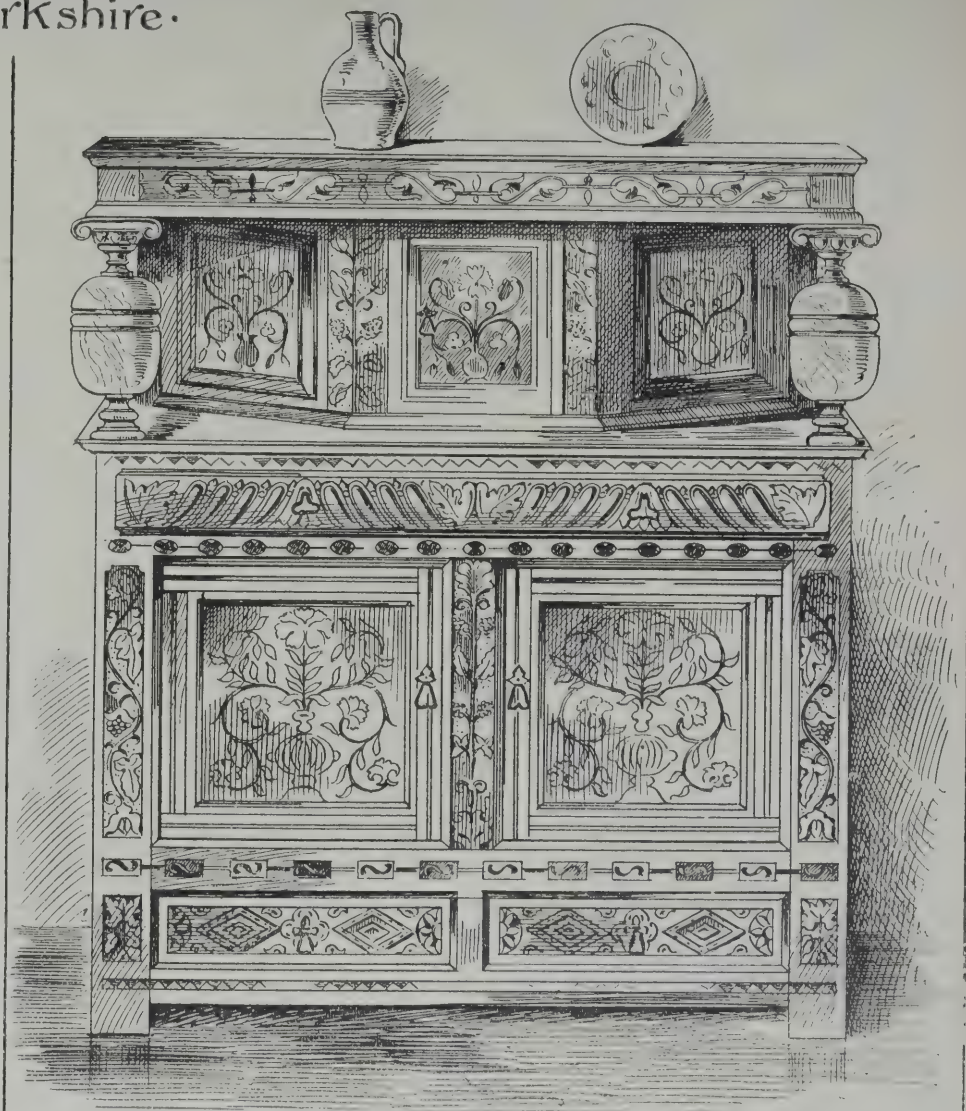


VALE-CRUCIS-ABBEY-NR-LLANGOLLEN

ELIZABETHAN • FURNITURE
from · Yorkshire ·



Tester Bedstead from Walton Hall.



Oak · Buffet.

E. Chancellor del.

WAYSIDE NOTES.

N a former occasion, when the battle of Profession v. Art was raging pretty violently, ggested that those parties who signed the orial to the Institute, together with such rs as hold similar opinions, should form iselves into a new society, where they might ast find consolation for the present times manners in sympathetic lamentations *inter* I must really be excused for again putting ard the suggestion. Why waste energies in e condemnation of the average mortal archi- If he is actually the contemptible creature the velvet-coat fraternity would have the ic believe, his methods and procedures must y be beneath criticism. It is a thousand s that gentlemen of such consummate skill e "artist-architects" should expend any of invaluable time in endeavours to sit upon oor, plodding practitioner, when they might te the same to the production of even a small nent of their high architecture. Far better d it be if they shook the dust in which the e-named poor, plodding architect grovels their feet for ever, and, renouncing all ing architectural societies, band themselves her with the strength of their own self- eousness, thanking the Lord that they are s other men, and looking hopefully to a day generation for the lost sheep.

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is true that some difficulty presents itself regard to the name and title of such a ty. The works of its members being of such homable architectonic excellence, how shall le sufficiently describe their lofty standard? mere demonination "architect" is manifestly ficient; nor would the resort to the proiation of the first syllable as in "arch," or ervant-girl's "arshitect," help in any way, ting, perhaps, that the domestic in question d be enabled to announce, with more natural ing dignity, the arrival of the great man. "artist-architect" sounds like a contra- on in terms; and, again, "art-architect" is ide, uncouth piece of verbosity altogether ing in euphony, and seeming to claim some of relationship with the "bogie-man." I mewhat distressed to find how little I can in this way. "Architectette" suggests as something to distinguish what is refined what is commonplace. Thus we should "the *Fin-de-Siècle* Society of Ethereal itectettes," an improvement, I own, on suggestions, yet still far from satisfactory, ng, as this title does, broad vowel sounds. rtheless, it would doubtless impress the c. I can imagine the client catching sight e report of a meeting of a body so named on reliminary morning glances at the paper, hen eating his breakfast in a thoughtful e that would go far to show that he had impressed indeed.

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eally thought that as a working phrase the ng, "Architecture—a Profession or an " was played out long ago; but here we it again in the columns of the *Times* cropping e a jack-in-the-box, looking fresher than and tempting the pen of many a trenchant r, *pro* and *con.*, as do all titles of subjects ing positive opinions from antagonistic s of view. The title is catchy, and not iently plain and straightforward. It lacks an t expression, open though its countenance appear at first sight. It affords every y for unknowingly arguing the same thing, for playing at cross-purposes. Writers d first give an amplification of the title as interpret its meaning. It would be far to adopt some such title in discussions of ature as, "Can the knowledge of an archi- e tested by examination?" or "What are ualifications of a true architect?" Taking tter as the subject of debate, I should be ed to think that, according to many, an ensable attribute is *conceit*, and to the t of some 99 per cent. of the sum total of ments required.

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is easy to see that the present discussion eave matters in dispute in exactly the same on as before. The "art" men—to give the utmost consideration—look at things in culiar light; the "profession" party commonsense on their side, and con- ntly the result of the discussion can be g more satisfactory than an agreement to differ. The matter in dispute being, by the very nature of the heading of the discussion, so very vague, it will be as difficult to say what the disagreement is about as to define the exact limits of the area whereon agreement might be supposed to be possible. Anyone will find that he can enter this discussion and write himself black in the face in support of either party. So long as individual prejudice, taste, and sentiment guide the opinions expressed, an apparently logical deduction can be made in any direction. It is only when we stand out of ourselves—so to speak—and take up a position on the secure basis of commonsense, and have consideration for the practical interests at stake, that we are enabled to see the question in its proper light. Facing the problem somewhat in the spirit of a Carlyle, we shall surely see that while on the one hand we have all that is human and concrete, on the other we have empty abstraction and consummate selfishness.

The Rev. R. H. Morris, D.D., Prebendary of St. David's Cathedral, writes in a daily respecting the condition of an interesting old building—Llangwyfan Church, in Anglesey, which stands on a small island, and was formerly approached from the mainland by a causeway. The church occupies the entire surface of the island, which is only 12ft. above the shore, and is thus exposed to the gales and tides that are rapidly destroying it and continually washing away bones from the graves. The church itself is now roofless; but Mr. Morris says that the walls are generally in good condition, and require but small repair. It is proposed to protect the building with new slates, repair the existing roof-timbers, and fill up the cracks in the walls. Further, a sea-wall round the island would protect it against the destructive effect of boisterous winter gales. The church is 15th century, with a certain portion of much earlier date, and at present consists only of one single aisle, with an arcade of three arches in the north wall, now, however, built up. The work of repairing this old building, which in its romantic position should be worth preservation, would not cost a great deal, seeing how small are the remains; so I trust the friends of the building will be successful in their efforts to raise the requisite funds. It would also be a good work to construct the sea-wall, and thus prevent the ultimate complete destruction of the church, after the same manner as so many of the grand East Anglian churches have been destroyed.

I notice that a large elm in front of St. Paul's Cray Church has been snapped in the recent gale, and narrowly escaped doing a large amount of damage to the building. As it is, it has knocked away a lot of the masonry in the buttress on the north of the famous Early English west doorway. The tree was a monster; where it has been broken off some 6ft. from the ground, it appears to be over 5ft. in diameter. Fortunately, it fell to the north of the church; had it been 10ft. more towards the south, it must have much injured the old building. Trees do not give one a great idea of weight in their natural state. It is a different matter when they fall. So with a horse: he does not look immensely weighty, but when he treads on your toe, your thoughts are, for the moment, directed from their erstwhile channel.

A new underground railway is proposed from Waterloo Station to Baker-street, passing under the Thames on the west side of Hungerford-bridge, and thence proceeding under Northumberland-avenue, Trafalgar-square, Haymarket, Piccadilly-circus, Regent-street, Regent-circus, and Portland-place. Is this to be the connecting link between the M.S.L. Railway and the South-Eastern? I understand that Sir Edward Watkin is anxious to provide a through route from the North of England to the Straits of Dover, and, perhaps, some day through the Channel Tunnel, whence the long-mooted four C.'s railway—Calais, Constantinople, Calcutta, and Canton—will carry one towards the rising sun. The Manchester, Sheffield, and Lincolnshire extension Bill is to be pushed forward next year, and may get through: it seems chiefly a matter of the selection of a suitable site for the London terminus. The proposed Waterloo and Baker-street line reminds me of my own suggestion as to a light railway from Charing Cross to the north of London. When will some enterprising engineer or company-promoter pull this through? It would surely pay amazingly well if properly carried out, with stations at Oxford-street and Euston-road, and such others in Kentish and Camden Towns and Hampstead and Highgate as might appear desirable in planning the railway. It seems an opportunity for some such undertaking as that of the City and South London Railway Company. GOTH.

CHARING CROSS NEW CONVALESCENT HOSPITAL.

AT the Triennial Festival dinner of Charing Cross Hospital, on Tuesday evening, the Lord Mayor, who was in the chair, said that recently a five-acre site for a convalescent home had been procured at Clacton-on-Sea. In furtherance of that desirable object they had received a munificent gift from Mr. Passmore Edwards. (Loud cheers.) When such donations were made, it showed that the age of philanthropy was not a thing of the past, but continued to this day. (Cheers.) The Lord Mayor then read the following letter:—

"London, Nov. 16, 1891.

"My Dear Sir,—I beg to thank you for the kind invitation to the Charing Cross Triennial Dinner on the 17th inst., which I am unable to accept. I have good reason to know the great good the hospital is doing, and that it is a permanent blessing to Central London, and in fact to the public in general.

"I also know what a pressing need there is for a convalescent home in connection with the hospital. I have consequently watched with interest and anxiety the efforts made for some time past to secure such a home, and have been a little surprised at the slow progress made towards its attainment.

"I therefore ask the privilege to be allowed to build and furnish, solely at my own expense, a convalescent home, with accommodation for fifty beds; and I beg, as an earnest of my intention, to inclose a cheque for five thousand pounds (£5,000), and I hereby undertake to give a cheque for the remainder of the estimated cost of the home when its foundation stone is laid.

"The only condition I attach to the gift is that the home shall remain in perpetuity under the control of the Governors and the Council of Charing Cross Hospital.

"I venture to hope that my subscription will in no way prevent the flow of other subscriptions towards the contemplated home, as such subscriptions might, subject to the discretion of the council, go to the formation of an endowment fund for future use.—I remain, my dear Sir, yours very truly,

"(Signed) J. PASSMORE EDWARDS."

The reading was frequently interrupted by loud cheers. The Lord Mayor added that he believed such a gift would not block others from giving, but would rather act as an incentive.

We have reason to believe that the proposed convalescent hospital will cost not far from double the amount of Mr. Passmore Edwards's cheque, the whole of which he will of course defray. Mr. H. Saxon Snell will probably be the architect of the building.

CHIPS.

The well-known decorative artist, M. P. V. Galland, who has of late years occupied the post of director of the State manufactories of Gobelins, has sent in his resignation.

The Hampstead, St. Pancras, and Charing Cross Railway has notified its intention of seeking powers next Session to construct an underground railway from Hampstead to Charing Cross, the line of route closely following the main thoroughfares between Charing Cross and the north-western suburb—viz., Tottenham-court-road, Hampstead-road, Camden Town, and Haverstock-hill.

A new mission church at Openwood-gate, near Belper, was opened on Monday by the Bishop of Southwell. The building, which will accommodate 250 worshippers, is in the Early English style, and it has been dedicated to St. Mark the Evangelist. The outside walls are of coursed rock-faced stone, with quoins and window jambs. The woodwork inside is composed entirely of red deal, relieved by courses of white bricks. Some of the side windows were taken from St. Peter's Church, at Belper, when it was restored. The entire cost has amounted to about £1,100. Mr. Maurice Hunter, A.M.I.C.E., Belper, is the architect, and the contractor is Mr. L. T. Wildgoose, of Matlock Bank.

Cavendish House, on the Promenade at Cheltenham, has just been reconstructed in the Italian Renaissance style for a business firm. Mr. G. W. Sadler, of Cheltenham, was the architect, and Mr. Thomas Collins, of Tewkesbury, the contractor.

At a meeting of the Shardlow rural sanitary authority held on Monday, a report as to the water boring operations in progress for the supply of Long Eaton was read from Mr. G. Hodson, of Loughborough, the engineer. He stated that the supply was of good volume, and was being derived from the millstone grit rock at a level of about 20ft. above that of the river Trent.

PRICES.—XXIII.*

(All Prices Include Profit).

JOINER (*continued*).

ENTRANCE AND COACHHOUSE GATES.

		£	s.	d.
2in. deal framed, ledged, and braced, filled in with inch deal matched battens beaded both sides, stiles of half plank, middle and bottom rails of 9in. or 11in., top rail half plank		0	1	0
2½in. ditto ditto		0	1	2
2⅝in. ditto ditto		0	1	4
3in. ditto ditto		0	1	8
2in. ditto ditto in 8 panels, the pair	per foot super.	0	1	2
2½in. ditto ditto ditto	ditto	0	1	4
2⅝in. ditto ditto ditto	ditto	0	1	6
3in. ditto ditto ditto	ditto	0	1	10
2in. ditto ditto in 10 panels	ditto	0	1	4
2½in. ditto ditto ditto	ditto	0	1	6
2⅝in. ditto ditto ditto	ditto	0	1	8
3in. ditto ditto ditto	ditto	0	2	0
2in. ditto ditto in 12 panels	ditto	0	1	6
2½in. ditto ditto ditto	ditto	0	1	8
2⅝in. ditto ditto ditto	ditto	0	1	10
3in. ditto ditto ditto	ditto	0	2	2
Add if stop-chamfered and plain stops to 8 panel, for each side	ditto	0	0	2
Ditto 10 panel ditto	ditto	0	0	3
Ditto 12 panel ditto	ditto	0	0	4
Add if moulded to 8 panels	ditto	0	0	1
Ditto ditto 10	ditto	0	0	1⅜
Ditto ditto 12	ditto	0	0	1¾
Ditto bolection 8	ditto	0	0	1¼
Ditto ditto 10	ditto	0	0	1¾
Ditto ditto 12	ditto	0	0	2
2in. wicket-gates extra over price given	each	0	3	6
2½ ditto ditto ditto	ditto	0	4	0
2⅔ ditto ditto ditto	ditto	0	4	6
3 ditto ditto ditto	ditto	0	5	0
All labours to rebates and beads on these extra				
1½ by 4 weathered and rounded capping	per foot run	0	0	5
Ditto with scotia moulding on both sides	ditto	0	0	6
1½ by 4⅜ ditto	ditto	0	0	6
Ditto with scotia moulding on both sides	ditto	0	0	7
2 by 5 ditto grooved, and with scotia mouldings on both sides	ditto	0	0	8
2 by 6 ditto ditto and ditto	ditto	0	0	8½
End notched	each	0	0	2
Ditto return moulded	ditto	0	0	3
Ditto cut on splay and planed	ditto	0	0	3
SASHES AND FRAMES—				
1½in. moulded sashes, single hung in deal cased frames with oak sunk sills, brass axle pulleys, best flax lines and iron weights	per foot super.	0	1	0
Ditto ditto double hung	ditto	0	1	1
Ditto ditto ditto segment heads	ditto	0	1	3
Ditto ditto ditto semi heads	ditto	0	1	6
Add for marginal bars	ditto	0	0	2
Ditto for small squares	ditto	0	0	2
Ditto for large bars to ditto	ditto	0	0	0½
Ditto as first, circular on plan, slow sweep	ditto	0	2	0
Ditto ditto ditto quick sweep	ditto	0	2	6
Ditto circular on plan, slow sweep and segment head	ditto	0	2	10
Ditto ditto semi head	ditto	0	3	2
Ditto ditto quick sweep segment head	ditto	0	3	0
Ditto ditto ditto semi-head	ditto	0	3	6
2in. moulded sashes, single hung in deal cased frames, oak sunk sills, brass axle pulleys, and flax lines and iron weights	ditto	0	1	1
Ditto ditto double hung	ditto	0	1	2
Ditto ditto but with segment heads	ditto	0	1	6
Ditto ditto ditto but square inside	ditto	0	1	4
Ditto ditto with semi-heads	ditto	0	1	10
Ditto ditto ditto square inside	ditto	0	1	7
Add for marginal bars	ditto	0	0	2
Ditto for small squares	ditto	0	0	2
Ditto for large bars	ditto	0	0	0½
2in. sashes, &c., as first, but circular on plan, to slow sweep	ditto	0	2	6
Ditto ditto quick sweep	ditto	0	3	0
Add for segment heads to slow sweep	ditto	0	0	6
Ditto semi-heads ditto	ditto	0	1	0
Ditto segment heads quick sweep	ditto	0	0	9
Ditto semi-heads ditto	ditto	0	1	6
2¼in. moulded sashes, single lining in deal-cased frames, oak sunk sills, brass axle pulleys, flax lines, and iron weights	ditto	0	1	3
Ditto ditto double hung	ditto	0	1	4
Ditto ditto segment heads	ditto	0	1	8
Ditto ditto semi-heads	ditto	0	2	0
Add for marginal bars	ditto	0	0	2
Ditto small squares	ditto	0	0	2
Ditto large bars	ditto	0	0	0½
Ditto all as first, circular on plan, slow sweep	ditto	0	2	9
Ditto ditto quick sweep	ditto	0	3	2
Add ditto to slow sweep for segment head	ditto	0	0	6
Ditto ditto quick sweep ditto	ditto	0	0	9
Ditto ditto to slow sweep for semi-heads	ditto	0	1	0
Ditto ditto quick sweep ditto	ditto	0	1	6
2½in. moulded sashes, double hung, in deal cased frames, oak sunk sills, brass axle pulleys, flax lines, and iron weights	ditto	0	1	6
Ditto ditto double hung	ditto	0	1	7

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		£	s.	d.
2½in. moulded sashes—				
Ditto ditto ditto segment heads	per foot super.	0	1	11
Ditto ditto ditto semi-heads	ditto	0	2	3
Add for marginal bars	ditto	0	0	2
Ditto for small squares	ditto	0	0	2
Ditto for large bars	ditto	0	0	0½
Ditto all as before, but circular on plan to a slow sweep	ditto	0	3	1
Ditto ditto quick sweep	ditto	0	3	5
Add to slow sweep for segment head	ditto	0	0	6
Ditto ditto semi-heads	ditto	0	0	9
Ditto quick sweep segment head	ditto	0	1	0
Ditto ditto semi heads	ditto	0	1	6
Add for lead weights instead of iron for plate glass	ditto	0	0	2
Allow for moulded horns worked on the stiles of sashes, to plain patterns only	each	0	0	2½
1½in. moulded sashes of Honduras mahogany, or wainscot oak or walnut, single hung in deal-cased frames, with oak pulley stiles and sills, brass axle pulleys, best flax lines, and iron weights	per foot super.	0	2	0
Ditto ditto double hung	ditto	0	2	1
Ditto ditto ditto segment heads	ditto	0	2	4
Ditto ditto ditto semi heads	ditto	0	2	7
Ditto ditto circular on plan to a slow sweep	ditto	0	3	7
Ditto ditto ditto quick sweep	ditto	0	4	2
Ditto ditto ditto slow sweep and segment heads	ditto	0	4	1
Ditto ditto ditto semi heads	ditto	0	4	6
Ditto ditto ditto quick sweep segment heads	ditto	0	4	9
Ditto ditto ditto semi-heads	ditto	0	5	2
Add for marginal bars to the first item	ditto	0	0	3
Ditto for small squares	ditto	0	0	3
Ditto for large bars	ditto	0	0	1½
Allow for moulded horns	each	0	0	3
2in. moulded sashes of Honduras mahogany, wainscot oak or American walnut, single hung in deal-cased frames, with oak pulley stiles and sills, brass axle pulleys, best flax lines, and iron weights	per foot super.	0	2	2
Ditto ditto double hung	ditto	0	2	3
Ditto ditto ditto segment heads	ditto	0	2	6
Ditto ditto ditto semi-heads	ditto	0	2	10
Ditto ditto ditto circular on plan to a slow sweep	ditto	0	3	9
Ditto ditto ditto quick sweep	ditto	0	4	4
Ditto ditto ditto slow sweep and segment heads	ditto	0	4	3
Ditto ditto ditto semi-heads	ditto	0	4	7
Ditto ditto ditto quick sweep and segment heads	ditto	0	4	11
Ditto ditto ditto semi-heads	ditto	0	5	4
Allow for moulded horns	each	0	0	3
Add for small squares	ditto	0	0	3
Add for large bars	ditto	0	0	1½
Add for marginal bars	ditto	0	0	3
2½in. moulded sashes of Honduras mahogany, and single hung in deal-cased frames, &c. as before	per foot super.	0	2	4
Ditto ditto double hung	ditto	0	2	5
Ditto ditto ditto segment heads	ditto	0	2	8
Ditto ditto ditto semi-heads	ditto	0	3	0
Ditto ditto ditto circular on plan to slow sweep	ditto	0	3	9
Ditto ditto ditto quick sweep	ditto	0	4	4
Ditto ditto ditto slow sweep and segment heads	ditto	0	4	4
Ditto ditto ditto semi-heads	ditto	0	4	8
Ditto ditto ditto quick sweep and segment heads	ditto	0	5	0
Ditto ditto ditto semi-heads	ditto	0	5	4
Allow for plain moulded horns	each	0	0	3
Ditto small squares	ditto	0	0	4
Ditto large bars	ditto	0	0	1½
Ditto marginal bars	ditto	0	0	3
2½in. moulded sashes of Honduras mahogany, &c., single hung in deal-cased frames, &c., as before	per foot super.	0	2	6
Ditto double hung	ditto	0	2	7
Ditto ditto segment heads	ditto	0	2	10
Ditto ditto semi ditto	ditto	0	3	2
Ditto circular on plan to slow sweep	ditto	0	4	0
Ditto ditto quick ditto	ditto	0	4	8
Ditto ditto slow sweep and segment heads	ditto	0	4	6
Ditto ditto semi ditto	ditto	0	4	11
Ditto ditto quick sweep and segment heads	ditto	0	5	3
Ditto ditto ditto semi ditto	ditto	0	5	8
Allow for plain moulded horns	each	0	0	3
Ditto extra for small squares	ditto	0	0	4
Ditto ditto large bars	ditto	0	0	1½
Ditto ditto marginal bars	ditto	0	0	3
1½in Spanish mahogany moulded sashes, single hung in deal-cased frames, oak pulley stiles and sills, brass axle pulleys, best flax lines and iron weights	per foot super.	0	2	6
Ditto double hung	ditto	0	2	8
Ditto ditto segment heads	ditto	0	2	11
Ditto ditto semi ditto	ditto	0	3	2
Ditto circular on plan to slow sweep	ditto	0	4	1
Ditto ditto ditto quick ditto	ditto	0	4	9
Ditto ditto slow sweep and segment heads	ditto	0	4	9
Ditto ditto semi ditto	ditto	0	5	3
Ditto ditto quick sweep and segment heads	ditto	0	5	4
Ditto ditto ditto semi ditto	ditto	0	5	9
Add for plain moulded horns	each	0	0	3
Ditto large squares	ditto	0	0	4
Ditto large bars	ditto	0	0	2
Ditto marginal bars	ditto	0	0	3

		£	s.	d.
2in. Spanish mahogany sashes, as before, single hung in deal-cased frames, &c.	per foot super.	0		
Ditto double hung	ditto	0		
Ditto segment head	ditto	0		
Ditto semi ditto	ditto	0		
Ditto circular on plan slow sweep	ditto	0		
Ditto ditto quick ditto	ditto	0		
Ditto ditto slow sweep and segment heads	ditto	0		
Ditto ditto semi ditto	ditto	0		
Ditto small squares	ditto	0		
Ditto large bars	ditto	0		
Ditto marginal bars	ditto	0		
2½in. Spanish mahogany sashes, single hung in deal cased framed, &c., as before	per foot super	0		
Ditto double hung	ditto	0		
Ditto segment heads	ditto	0		
Ditto semi ditto	ditto	0		
Ditto circular on plan slow sweep	ditto	0		
Ditto ditto quick ditto	ditto	0		
Ditto ditto slow sweep segment heads	ditto	0		
Ditto ditto semi ditto	ditto	0		
Ditto ditto quick sweep	ditto	0		
Ditto ditto segment heads	ditto	0		
Ditto ditto semi heads	ditto	0		
Allow for plain moulded horns	each	0		
Ditto extra for small squares	ditto	0		
Ditto ditto large bars	ditto	0		
Ditto ditto marginal bars	ditto	0		
2½in. Spanish mahogany sahes, single hung in deal cased frames, &c., as before	per foot super	0		
Ditto double hung	ditto	0		
Ditto ditto segment heads	ditto	0		
Ditto ditto semi heads	ditto	0		
Ditto circular on plan slow sweep	ditto	0		
Ditto ditto quick sweep	ditto	0		
Ditto ditto slow sweep and segment heads	ditto	0		
Ditto dito and semi-heads	ditto	0		
Allow for plain moulded horns	each	0		
Ditto extra for small squares	ditto	0		
Ditto ditto large bars	ditto	0		
Ditto ditto marginal bars	ditto	0		
VENETIAN sashes and frames—				
1½in. deal moulded sashes, double hung across side lights, side-lights fixed in deal cased frames, oak sunk and weathered sills, brass axle pulleys, best flax lines, iron weights, &c.	per foot super	0		
Ditto side lights hung	ditto	0		
Ditto segment heads, square inside	ditto	0		
Ditto segment ditto inside and out, and linings cut to sweep	ditto	0		
Ditto semi head outside, square inside	ditto	0		
Ditto ditto semi both sides	ditto	0		
Ditto circular on plan to slow sweep	ditto	0		
Ditto ditto quick sweep	ditto	0		
Ditto ditto slow sweep and heads segment outside	ditto	0		
Ditto ditto quick sweep and ditto	ditto	0		
Ditto ditto semi head outside slow sweep	ditto	0		
Ditto ditto quick sweep	ditto	0		

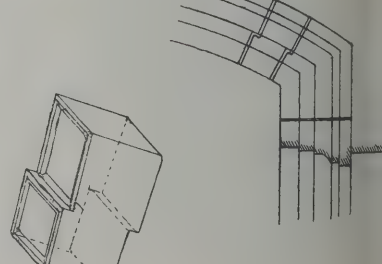
NOTES ON TERRACOTTA.*—V.

TREATMENT.

IN arches of the camber type whose vous have each a different length and bevel, voussoir should, while in the plastic stat impressed with a numeral—1, 2, 3, and so o to the key—to mark its position in the arch.

Fig. 11: Part of one of a series of seg

FIG. 11.



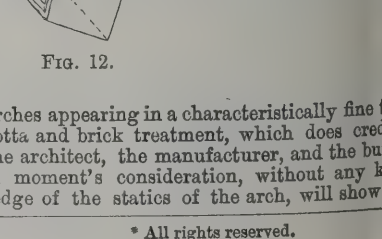


FIG. 12.

arches appearing in a characteristically fine t cotta and brick treatment, which does cred the architect, the manufacturer, and the bu A moment's consideration, without any k ledge of the statics of the arch, will show

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rebate (or "joggle," as it is sometimes loosely ed) in this case is superfluous, being, in , one of those things which sometimes tinue to be repeated for want of thought. presence in the semi-arch is still more of order with a knowledge of the well- own principles upon which the construction the arch is based. An enlarged arch block n Fig. 11 is shown in isometric by Fig. 12. outer edges of the beds are in the lines of ii, with the remaining surfaces sunk back

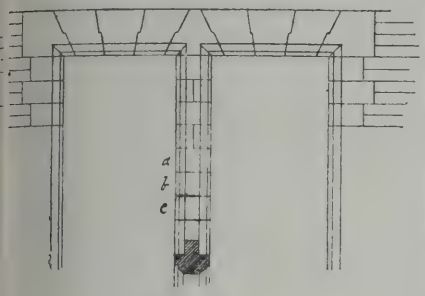


Fig. 13.

, or more, forming what is known as "panel s," these panel ends being the same to terra- a as the "chipping joints" or fillets are to structional cast-iron work—*i.e.*, to admit of e and accurate fitting by the removal of tions here and there if found necessary. The el ends also play an important part in the ng, being receptacles for grout, which, when

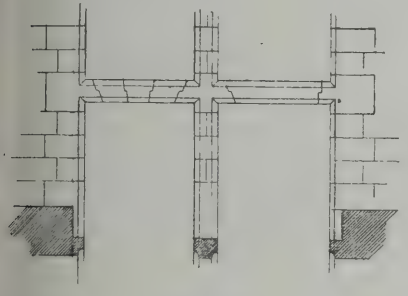


Fig. 14.

acts as a plug or dowel between every two secutive blocks in the same course.

Fig. 13, a two-light window with terracotta ssings. Mullions of the kind here shown are en produced devoid of all vertical jointing, ng so many single blocks piled one on top of other, from sill to springing, as at *a*, *b*, *c*, h the inevitable result that what should

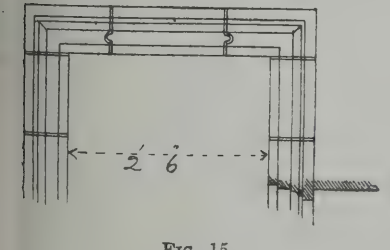


Fig. 15.

pear as perpendicular straight lines are any- ng but straight or pleasing, the fixer having latitude to "humour" or adjust the members lines, and so, in a measure, overcome the rind" or "twist" of the blocks, as well as difference in widths resulting from in- alities of tempering and firing. Where the lth of the mullion will admit, each course uld be in two pieces, rather than in one, and alternately, as shown on the upper portion the mullion. It is an old saying amongst rs, that a piece of work "split up" into three ces can be fixed more truly than when in two ces. This, though true, must be received with qualification. Fig. 14, part of a four-light dow, showing two kinds of rebate, or joggle- ting. As there is no weight to be carried ond that of the transom itself, the jointing is nere matter of taste. The slanting joints should radiate from a common point—the apex of an inverted Gothic arch whose radius is equal to the width of the light or opening. Fig. 15: trabeated door or window-head, with architrave moulding carried round and jointed with a beaded

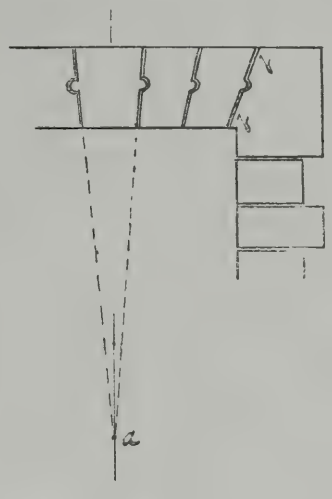


Fig. 16.

joggle. The bead is made to project from the end of the block from 1¼in. to 2in. The construction is suited only to narrow openings.

Fig. 16, flat arch, with beaded joggle-joint. The joints in terracotta are either rebate, joggle, butt, or lip-joints. The lip-joint is

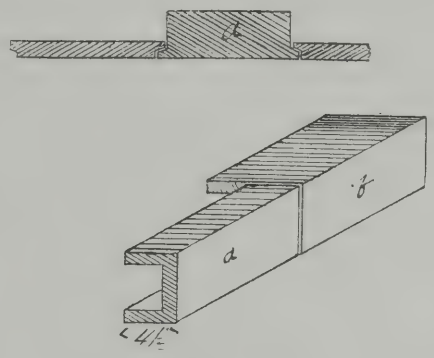


Fig. 17.

shown by Fig. 17. It is seldom used now, but was much in vogue at one time, when terracotta was looked upon as a system of veneering rather than as a material capable of the most artistic and constructional treatment, as is now everywhere evidenced around us. The middle block *a* was

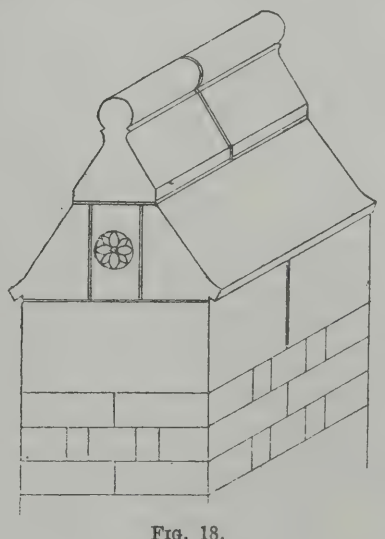


Fig. 18.

used as a bonder in ashlar work. Fig. 17, *a b*, two pieces of ashlar, pressed through a "die," as explained in Article IV., which is the cheapest mode of production, there being no moulds to make other than the "die." These blocks (and all blocks in terracotta, whether pressed or moulded—*i.e.*, made in moulds) should be of such widths on their beds as to properly bond into the wall. Where this is not done, the bond of the walls is very much broken up, besides entailing a wasteful expenditure of time and material in the course of "backing up" the terracotta. The beds should be brick in sizes of 4½in. or 9in. These blocks in the ordinary course would be filled in with a mixture of cokebreeze and Portland cement, in the proportion of 10 of breeze to 1 of cement, some three or four days prior to using them. Sometimes common soda, in the proportion of 1lb. of soda to 10 gallons of water, is used to mix up this material, for the purpose of accelerating the setting. This should not be done, as it reduces the ultimate strength of the cement. The proportion of cement, though small, is enough, as the expansive power of the cement—especially newly-manufactured cement—has to be guarded against: otherwise the blocks may be cracked. Figs. 18 and 19 show two different methods of "splitting

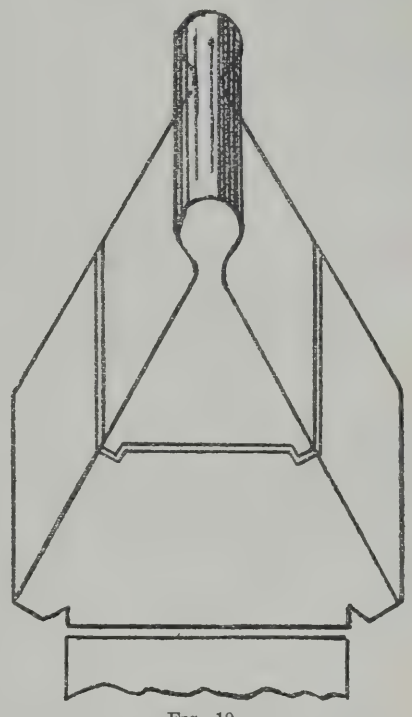


Fig. 19.

up" or jointing pier-caps, the upper portion of Fig. 19 being rebated into the lower portion, while Fig. 18 is made up of butt-joints, and having eight separate pieces of terracotta. The end piece, with the patera impressed thereon, would be from 1¼in. to 1½in. thick, and would, tile-like, be let into the space between the two side-pieces shown, throated, the blocks being "loaded" with breeze concrete, compacted by ramming. The next article will be on Sections.

THE PLACE OF CALIGRAPHY IN PERSIAN ART.

MAJOR-GENERAL SIR R. MURDOCH SMITH, Director of the Edinburgh Museum of Science and Art, delivered last week the opening lecture of the session of the Edinburgh branch of the British Typographia. Mr. Archibald Constable, honorary president, introduced the lecturer. The subject of the lecture was "The Place of Caligraphy in Persian Art," and the lecturer pointed out, to begin with, that printing from movable types was hardly, if at all, known in Persia. They were, however, the greatest adepts in the world in the nearly allied art of caligraphy, which was regarded among them as one of the fine arts. He showed how the development of Persian art was exhibited in the architecture of the country, and how it had accommodated itself to the limited materials at the builder's command. The material for the most part at the command of the builder was sun-dried brick, and the feature of the architecture was the niching of the walls within and without, the use of stalactite-like pendants to ornament these niches, the ornamental arrangement of the brickwork, specially the indenting of the walls to

give the effect of light and shade, and the riveting of the wall surfaces with ornamental wall tiles of mosaics. Some of the features of Oriental architecture imitated in this country and attributed to the Moors was, the lecturer said, really Persian in its origin. It was in the mosaic word decoration of wall that the use of caligraphy came in, and it served the double purpose of ornamentation and the inculcation of good precepts. The lecturer exhibited examples of this style of decoration on the spandrels of arches, and of lintels and posts of gateways. In the same way he showed how the use of caligraphy entered into the ornamental scheme of tile work, and earthenware generally, textiles, and metal work, and he exhibited examples of each, mostly belonging to old Persian art, in which caligraphy for decorative purposes was beautifully applied in varied ways. Islamism, in prohibiting anything which might be described as an image in Persian decoration had exercised a limiting influence on the art of the country, but the inventiveness of the people had enabled them either to evade the Koranic injunction—of which amusing examples were given—or had found an outlet in other directions. Every conceivable material had been pressed into the service of art, and he thought it might safely be said that it had touched nothing which it had not adorned. Perhaps no other race had shown greater originality in artistic faculty, and certainly none had exercised it through such a long succession of centuries. In many of our arts and industries in this country we were at the present moment either modifying or reproducing, consciously or unconsciously, designs which long ago emanated from the fertile imagination of our distant kinsmen of Iran.

TECHNICAL EDUCATION OF PLUMBERS.

IN reporting on the results of the examinations held during the year by the City and Guilds of London Institute, the Council of the Institute state: "There has been no break in the continuous increase in the number of candidates in 'Plumbers' work.' The failures in this subject are always large; but the percentage this year is slightly lower, being 56·7 as compared with 59 in 1890. The practical examination in plumbers' work was held in twenty provincial and three London centres. Of the 684 candidates, 200 presented themselves for the practical test, of whom 97 satisfied the examiner. Last year 163 presented themselves, and 36 passed. Of the 97 successful candidates this year, four failed to present themselves for the written examination, and are not qualified for a certificate. Of the 97 candidates who passed the practical test, 52 passed also in the written examination, and are qualified for certificates. The corresponding number last year was 23."

These figures show that of the large number (684) of candidates who attended the classes, only 52 succeeded in passing the full examination in practical and theoretical plumbing. But the figures also show a slight increase over the average for the previous year, pointing to the fact that the instruction given is slowly but surely effecting the object in view—viz., improving the education of plumbers.

The Mayor of Newcastle-on-Tyne presided, on Monday evening, at an influential public meeting, held in that town under the auspices of the North of England District Council for the National Registration of Plumbers. Among those present were Alderman Head, Dr. Garnett (principal of Durham College), Councillor Armour, and the clerk of the Plumbers' Company, London. The mayor laid particular stress on the folly of householders and others adopting a cheese-paring policy in regard to plumbers' work. What was saved in the plumber's bill was multiplied and added on to the doctor's bill. A few shillings saved in the former often caused death, or serious illness which sapped the constitution and unfitted the sufferers for the battle of life.

The following resolutions were passed:—"That this meeting memorialise the local authorities to consider the operation of the Technical Education Acts in the counties of Northumberland, Durham, Cumberland, Westmoreland, and the North Riding of Yorkshire, with reference to the Technical Education of Plumbers."

"That this meeting, having considered the terms of the resolution passed at the recent Congress of Hygiene, on the proposal to organise the training and Registration of Plumbers, adopt the same, and instruct the secretary to send a copy of the resolution to the members of Parliament of the district, and to the President of the Local Government Board."

SANITARY APPLIANCES AND FITTINGS.

MESSRS. GEORGE FARMILOE and SONS, of 34, St. John-street, West Smithfield, has sent us a copy of their new general catalogue, which embraces sanitary fittings, lead-work, stained and plate-glass, and various requirements of the building trades. The volume is handsomely bound in cloth, and contains over 700 pages of engravings and prices. We can only glance over the chief objects of this volume. The "Water Lily" closet is unique; it has a good water-seal in trap, while the latter is very small in cross section—a desirable condition for limited flushes. It is also so formed as to give a quick scour to the flush. These closets are made as pedestal closets, and in white, ivory, and other colours. George Farmiloe and Sons' "Smithfield" flush-out closet makes also an admirable pedestal arrangement with fluted base, varying in price from 35s. to 45s. Various other patterns of flush-out closets are illustrated, among them the firm's "Ivyite" closet in one piece of earthenware, with tinted ivy-leaf ornamentation; Jennings' closets, as the "economic" flush-out and the "pedestal vase"; Doulton's closets, as the "Lambeth patent pedestal combination flush-out"; Hellyer's closets, Pearson's, Tylor's, and other improved valve arrangements, notably George Farmiloe and Sons' elastic valve closet, with flushing-rim basin and crank to work waste preventer. Farmiloe and Sons' self-lifting "closet seat" is a simple gravity adjustment. Architects who are specifying closet apparatus cannot do better than consult the pages of Messrs. Farmiloe's catalogue, as each type of closet in the market is illustrated and priced, and the extras given. Closet basins or hoppers are also added. In the list of sanitary appliances we notice Adams's latrine, an automatic flushing arrangement; we have before described his "Trough" closet. Apparatus and fittings, such as lead traps, closet handles, waste-preventing valves, are given in detail. Several good forms of siphon cisterns, including Farmiloe's registered "Wave" siphon waste-preventing cistern and "whirlpool" are illustrated. Cheap cast and wrought-iron cisterns, baths of cast iron and of various designs, tinned-iron baths, water-heaters, and bath fittings occupy several pages. The patented lavatories suitable for every class of house and office and their fittings are worth notice. Sinks of stoneware and porcelain, and for various uses, and traps of every improved type, including those of the best patentees, are here catalogued. All the very best ventilators, including Boyle's, Kershaw's, Banner's, Hellyer's, are illustrated. Pipes of cast iron for soil-pipes, pipe-joints, drain-testing apparatus; a varied assortment of the best made "bib" and stop cocks, roundway steam and screw-down cocks, the School Board pattern variety included; plumbers' brass-work; pumps and fittings for different purposes; hot-water fittings; chimney cowls of various patterns; galvanised sheets, curved and corrugated, for roofs; stable fittings, speaking-tubes and fittings, &c., are among the articles to be found in this book. The list of oil-colours, dry and ground in oils, whitelead, &c., and the coloured designs of "brilliant-cut" and embossed glass, adapted for windows, skylights, panels, &c.; also the leaded-light designs in colours, of which there are several plates of patterns, will be found of much value to architects and others. We also find examples of wrought-iron casements and frames, sliding sashes of copper in gunmetal frames, and moulded bars. A copious index is appended. A copy of this comprehensive catalogue of sanitary appliances, fittings, and glass ought to be in the hands of every architect and builder.

A pulpit, designed by Sir Arthur Blomfield, has been placed in the parish church of Burghclere, near Newbury, as a memorial of the late Earl of Carnarvon, who built the church and adjacent rectory. The old church at Burghclere, which stands at the further end of the parish, contains the remains of Lord Carnarvon's ancestors.

Building Intelligence.

BISHOPSTOKE.—To meet the requirements the South-Western Railway employés, a n church has been built at Bishopstoke to repl the plain, ivy-clad stone structure opened 1825. The first section of the new buildi which occupies a more central site than the ol one, has cost £4,150. It has been designed the style of English Fourteenth-Century Goth Externally it is faced with snapped flints fr the Reading chalk-pits, the quoins and dressi being of Bath stone. Internally the walls plastered over a brick face. There is one ai on the south side, vestries and organ-chamber the north side of the chancel, and a small ba tistery at the west end of the aisle. A squa tower is intended to be built eventually at t west end of the nave, the walls of the structu being carried up for the present only to the t of the plinth-course. The chancel roof is ceil with boards and divided into panels with mould ribs; the nave and aisle roofs are open-timbere The roof is covered with red tiles. The dime sions of the nave are 60ft. by 25ft.; chanc 36ft. by 20ft.; aisle, 10ft. by 6ft. The tower to be 21ft. square, and its total height 58 Messrs. Wheeler Bros., of Reading, were t builders, and Mr. E. P. Warren, of Londo the architect.

PORTHLEVEN.—The parish church of St. Ba tholomew in this distant Cornish village, o built some fifty years ago, has just been resto by Mr. G. H. Fellowes-Prynne, A.R.I.B.A architect, of Queen Ann's Gate, S.W., a sum something like £2,000 having been spent there The roofs and walls have been overhauled, a interior walls replastered. A new vestry, w organ-chamber over, has been built, and a n baptistery added. The pews and wood floori have been removed, and the passages paved w encaustic tiles and the remainder of the chu with new blocks. Chairs are used. The chan floor has been extended, laid with encaustic til and a new oak altar is placed in the sanctua which is raised by several polished marble ste The stalls are massive, and of carved oak. T building is heated by hot water. The chan fittings are by Messrs. Harry Hems and Sons, Exeter. The rest of the work has been execu by local labour.

ROMSEY.—In the abbey church a very ha some pulpit of carved oak, and designed by I Ewan Christian, architect to the Ecclesiasti Commissioners, has just been erected in memor the late Mr. R. G. Linzee, a former churc warden. It is 7ft. 4in. high, and 8ft. in dia and has been made by Mr. George Wheel jun., of Romsey, the statuettes that occur in panels around the body of the pulpit being fr the studios of Mr. Harry Hems, of Exeter.

SOUTHPORT.—On Sunday, at St. Andre Church, Southport, there were unveiled a se of mural paintings executed upon the spandr of the north and south walls of the nave, a also over the archway to the chancel. Th represent, on the north side, Isaiah, Jeremi Ezekiel, and Daniel, upon the south the F Evangelists, and over the chancel archang with censers. Twelve months ago, competit designs were invited, and those of Mr. Reub Bennett, of Liverpool, were untimately select Mr. Frederick Shields, of London, was the upon engaged to prepare a series of designs the spandrels, and Mr. W. E. F. Britten execute them. The figures upon the east w were intrusted to Mr. Hiller, and the gene scheme of accessory decorations to Mr. Har Bennett. It is the first instance in this distr of mural painting on so important a scale be adopted. The general scheme of decoration b to roofs and walls is of cream colour embellish by symbolic ornamentation. Mr. J. F. Doy architect, of Liverpool, has supervised the wo

Colonel J. O. Hasted, R.E., an inspector of Local Government Board, held an inquiry at W stanton, on Friday, with reference to an applica by the rural sanitary authority for sanction to ra upon loan, the sums of £1,340 and £660 for wo of sewerage and sewage disposal for the spe drainage districts of Chatterley and Wolstan respectively. Mr. G. B. Ford, surveyor to authority, explained the scheme, which he s proposed to deal with Port Hill and New-str Wolstanton, and Longbridge Hayes and Pear T Hollow, in Chatterley.

COMPETITIONS.

ORK COURTHOUSE RESTORATION.—A meeting he Joint County and City Committee was l on the 10th inst. to consider the accepted as for the restoration of the courthouse ently burnt out. The committee agreed that . Hill's plans (subject to certain slight lifications) should be adopted as those upon ch builders' tenders should be invited, and author was instructed to prepare the neces- working and detail drawings, specification, conditions of contract, upon which tenders d be advertised for, Mr. Hill being satisfied the work can be done within the limit of ,000 expenditure; but in the event of a satis- ory tender not being obtained within that t, the committee not necessarily to be bound arry out his design. It was agreed that in event of his design being carried out Mr. should be paid the usual 5 per cent. on the enditure, less the amount of the premium 0) awarded to him.

INCHLEY ROAD, N.W.—Messrs. Spalding and ss have obtained the first place in the competi- for building a Congregational church ad- ing Hackney College in the Finchley-road, r plans for the church and school hall having selected almost unanimously by the com- tee.

LDBURY.—The plans which took the first prize red by the Oldbury Local Board, for the best me for improvements and extensions at the ay sewage works, were submitted by Mr. B. holls, of Birmingham.

RETORIA, SOUTH AFRICA.—We are informed the important architectural competition for new National Bank, Pretoria, has been ntly decided, and that the plans sent in by firm of Messrs. Frank Emley and Frank t, architects, Pretoria, have been placed first.

CHIPS.

he town council of West Bromwich have decided aise the salary of the head master of the School rt, Mr. J. A. Pearce, from £250 to £350 a year.

mong the adjudications in bankruptcy in Fri- 's *Gazette*, the name appears of Frederick liam Fryer, of Surrey-street, Strand, architect surveyor, and newspaper proprietor.

vestry meeting was held at Sutton, Surrey, on rsday in last week, when plans by Sir Arthur nfield for the restoration of the parish church e adopted.

he new Whitehill Public School, erected by the sgow School Board, was opened on Monday. school is at the corner of Whitehill-street and ay Drive, Dennistone, and is rectangular in , having a central hall with galleries, into which y classroom opens. Accommodation is provided ,020 scholars in three departments. The build- which cost £15,050 (exclusive of the site, which £2,205), is plain in style, having a basement of ar, and upper stories of coursers with ashlar sings. The school has been constructed from plans of Mr. W. F. Salmon, F.R.I.B.A., of ncockle red freestone.

he London County Council agreed on Tuesday contribute £50,000 towards the purchase of kney marshes, 337 acres in extent. An intima- was received from the Board of Trade that saw no reason for withholding the approval d for by the Council to the purchase of ways. The Council also resolved to seek Par- entary powers to arrange with the Trustees of coln's Inn-fields for the transfer of the gardens he Council.

r. Joseph Baxter, of Walsall, for many years large way of business as a builder in Park- et in that town, died last week, aged 88 years.

r. Samuel Forbes Downing, B.A., Trin. Coll., blin, the principal of the Civil Engineering ege at Seebpore, Calcutta, died on October 16 Joomer, Madras, in the 48th year of his age.

t last week's meeting of the London School rd a very long annual report was presented by chairman of the Works Committee, the first of kind brought up by this committee. The chair- stated that the cost of repairs to the schools ing the year amounted to £67,285. As to the k of the land surveyor, during last year claims e received for £94,728; they were settled for ,259. Other settlements without claims were le to the extent of £37,605, and several claims e altogether disposed of.

ew schools are in course of erection for the leshill School Board, at Eccleshill. Messrs. dall and Bakes, of Leeds, are the architects, Messrs. S. Hobson and Son, of Idle, are the ders.

ARCHITECTURAL & ARCHÆOLOGICAL SOCIETIES.

BIRMINGHAM ARCHITECTURAL ASSOCIATION.—The annual conversazione of this association was held at Edgbaston Assembly Rooms this week. The rooms and stage were tastefully decorated, and a number of architectural drawings, sketches, and photographs were exhibited by Messrs. Aston Webb, E. Ingress Bell, J. E. Collcutt, W. Emerson, W. Millard, Ernest George, E. J. May, Phené Spiers, and E. W. Mountford, of London; Messrs. Bidlake, Osborne, Newton, and Bateman, of Birmingham. Especial mention might be made of Mr. Middleton's fine collection of 100 photographs of Warwickshire churches, and Mrs. Willis contributed some interesting specimens of church furniture.

MANCHESTER ARCHITECTURAL ASSOCIATION.—For some time it has been considered that the interests of the architectural profession in Manchester would be better promoted by being represented by one body. This having been accomplished by nearly the whole of the members (a little under one hundred persons) of the Manchester Architectural Association joining the Manchester Society of Architects, a special general meeting was held at the Diocesan Buildings on Tuesday, Mr. J. D. Mould, vice-president, in the chair, for the purpose of presenting the prizes, passing the reports of the last session, and the following resolutions:—"It is here resolved that the library, book-case, and all other property of the Association be presented to the newly-constructed Manchester Society of Architects." "That satisfactory arrangements having been made for the fusion of this Association with the Manchester Society of Architects, the Manchester Architectural Association be, and is, hereby dissolved."

ROYAL SOCIETY OF ANTIQUARIES OF IRELAND.—A large number of the members of the Royal Society of the Antiquaries of Ireland assembled at the Royal Hospital, Kilmainham, at noon on Thursday in last week, under the guidance of the hon. provincial secretary for Leinster, Mr. John L. Robinson, A.R.H.A. The party were courteously received by Viscount Wolseley, K.P., Commander of the Forces, who pointed out the objects of interest, principally armour, arranged in the great hall of the hospital. The charter of Charles II. was also shown. Lord Wolseley has caused the walls of the great hall to be decorated with trophies and armour, the greater portion of which were removed from the Pigeon-house Fort. The chapel is being restored, so that the hall is now used as a temporary chapel. The party then visited the adjoining churchyard, "Bully's Acre," and inspected the remains of the cross said to have been erected over the grave of Brian Boru's son Murrough, who was killed at the battle of Clontarf, A.D. 1014.

SHROPSHIRE ARCHÆOLOGICAL SOCIETY.—The annual meeting of this society was held at Shrewsbury on Saturday. Archdeacon Lloyd, who presided, in moving the report, urged the importance of further excavations at the buried city of Uriconium, suggested that steps be taken for the preservation of the crypt of old St. Chad's, and favoured a proposed removal from its present site of the ancient stone pulpit of the abbey to some more suitable spot. Alderman T. Southam strongly opposed the removal of the old abbey pulpit from its original position. The council and officers were re-elected.

YORK ARCHITECTURAL ASSOCIATION. — The annual general meeting was held on Thursday, Nov. 5, Mr. W. G. Penty, F.R.I.B.A., in the chair. The secretary's and treasurer's reports were read and adopted, being in every way satisfactory. Mr. Walter Bennett was again successful for the prize competition for members who have been only four years in the profession. A hearty vote of thanks was accorded to Mr. William Hepper, who is resigning the position of hon. secretary, which office he has so ably filled for some years past. Mr. Arthur Pollard was unanimously re-elected president. Mr. Alfred B. Burleigh (York) was elected hon. sec., and Mr. Norman R. Yeoman hon. treasurer. The committee for the tenth session was chosen as follows.—Messrs. E. T. Felgate, T. J. Pegg, J. G. Perry, H. Sellars, and T. Spencer Yates, A.M.I.C.E. Mr. J. Wallace Stevens (Whitwell) was elected a fellow.

Two stained-glass windows, the work of Mr. Kemp, of London, were unveiled in the chancel of the old parish church of Rugeley on the 12th inst.

TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, 332, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

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NOTICE.

Bound volumes should be ordered early (price Twelve Shillings each), as only a limited number are done up. A few bound volumes of Vols. XL., XLI., XLVI., XLIX., L., LI., LIII., LIV., LVIII., LIX., and LX. may still be had, price Twelve Shillings; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

RECEIVED.—E. B. P.—J. E. and Co.—S. P.—D. and Co.—W. H. S. and Son.—G. J.—G. G.—H. B. and B.—A. W.—D. and S.—E. H. L.—T. H.—D. J.—J. B. and Son.—B. of S.—B. H. and Co.—M. and Co.—A. P. Co.—F. A. Co.—T. P. Co.—A. W. and Son.—W. and J. B.

"BUILDING NEWS" DESIGNING CLUB.

DRAWINGS RECEIVED.—"Sphinx."—"Faber Niger."

RECEIVED.—C. E. Bennett, Arthur Down, "Trick," A. R. M.

Correspondence.

THE EMPLOYMENT OF BUILDERS AS ARCHITECTS.

To the Editor of the BUILDING NEWS.

SIR,—As a ten years' subscriber to your journal I may perhaps be permitted to make a few remarks upon your article, "The Employment of Builders as Architects."

The writer of the article uses the poor builder's clerk so roughly that as a builder's manager (say a superior builder's clerk), I feel impelled to say a few words in his behalf.

The "attribution of the incompetence and ignorance of builders' employés to architects" would be—if not a "great injustice"—certainly a gross falling away from the path of mercy, for they have already enough of their own to answer for. During the last fifteen years I have had through my hands the drawings and specifications of some scores of architects, three-fourths of which productions have displayed more or less (more particularly as regards the specifications), the "incompetence and ignorance" of their authors. I do not hesitate to say that the average builder's manager can write a more practical specification, and put the matter of it more lucidly before the reader than three-fourths of the members of the architectural profession could do. I will also assert that he can make a more practical drawing, perhaps for the reason that no inconsiderable part of his time is spent—in company with the shop foreman—in modifying the impracticable "details" prepared by architects.

Sir, a builder's manager is not necessarily devoid of education; he can think, and has even been known to possess some amount of taste, notwithstanding all ideas to the contrary on the part of that immeasurably superior personage the architect. And granting this, his opportunities of qualifying to provide for the wants of the public in the matter of houses seem to be superior to those of the *average* architect. The latter is *assumed*, at any rate, to have served articles to some practitioner, who was *assumed* by the pupil's parents or guardians to possess valuable knowledge, and to be willing, for a consideration, to impart it to the pupil. In how many instances do pupils receive—even from qualified masters — any amount of personal tuition, or are allowed to see much of work in progress? In the majority of cases they know nothing practically on completing their articles; still, if not dependent entirely on their own earnings, they shortly aspire to join the ranks of the profession. The builder's manager, on the other hand, has in most cases served a term at the bench, and had good opportunities meanwhile of seeing the work of all branches of the building trade in progress. As a manager, he has hundreds of drawings and specifications through his hands, can assimilate the good and reject the bad, and is in constant touch with building operations, every detail of which comes under his immediate attention. There is no law which prevents him from occupying his spare time in the study of design, and the details of heating, ventilation, and sanitation are not beyond the range of his faculties. He can read the illustrated building papers, and should he, in drawing an elevation, appropriate a feature, or even a whole façade, he may soothe his conscience by reflecting that such a course is not without precedent in higher spheres.

It may be the very rankest heresy; but it is, nevertheless, the opinion of many competent men that the training of the builder's manager is the architect's training *par excellence*.

I feel I have already trespassed too much; but should just like to say that I have seen some houses built on an estate where a F.R.I.B.A. had a monopoly. They illustrate in a striking manner the futility of attempting to apply large ideas to little ends. One poor investor lets a house which cost £900 for £20 per annum—not because the estate is a failure, but because *fads* have rendered the house barely habitable. It is a fact that the only decent houses on the estate are those in which strong-minded clients insisted on their own ideas being carried out. I inclose a card, and remain—Yours, &c.,

A Builder's Manager.

SUNDERLAND ASYLUM COMPETITION.

Sir,—Will you allow me to call the attention of intending competitors to the fact that no mention is made as to the intention of the committee to employ the author of the design placed first to carry out the work, or otherwise? It would be well to obtain a definite statement on this point, and so allay the rumours of an attempt at a bit of local "jobbery" which are already rife in this district.—I am, &c., On the Spot.

Nov. 17.

CAVITY-WALLS.

Sir,—Referring to previous letters respecting the above, I think the subject one of vital importance to the building trade and the health of the general public. If houses can be erected of brick on this system at much less cost, and also drier and healthier, than of stone and brick combined, it must be advantageous, in the long run, as a means of cheapening rents, or giving more accommodation for the same rent.

I have seen, in Yorkshire, many houses erected with cavity walls, and the general report is that they are not liable to damp in the least. They are built of two 4½in. walls, with a 2in. cavity and one pair of indented bricks, and cast-iron tie in every super. yard of walling, the metal being about ¾in. square, with a swelling in the middle, causing any moisture that may accumulate to drop off, and also strengthening the tie. I do not see why the use of stone should not be reduced to a minimum point where the price is high, as its use might be dispensed with except for sills and thresholds.

If any of your readers know of any better system, it would be interesting to hear from them.—I am, &c., J. W.

Intercommunication.

QUESTIONS.

[10662.]—**Roof.**—The sketch is the outline of an iron roof truss, distance apart of trusses 10ft. Will some reader kindly let me have safe scantling of the different members forming the truss. Principal rafters to be of double bar iron, kept 1½in. apart by iron distance-pieces,



the struts of T-iron, and all the tie-rods of bar iron. Two wood purlins on each slope, 9in. by 6in., to be covered with slates.—J. B. F.

[10663.]—**Timber.**—Hurst's Handbook says red pine (P. rubra), two-leaved, is a mere variety of the Pinus sylvestris, or Scotch fir (the timber of which, imported from the Baltic and White Seas, is the "red wood" of the timber merchant, the "yellow deal" of the London carpenter, and is sometimes called "Northern pine"); but the red pine under consideration (Pinus rubra) is grown in North America. Its grain is finer than the Pinus sylvestris, or Scotch fir, from the Baltic, it is not so apt to shrink or warp in seasoning, it contains less sap, and is very free from knots. All very desirable qualities. But Laslett ("Timber and Timber Trees") says red pine is the Pinus resinosa, sometimes called here "Canada red pine," grown also in the United States, and known in New England by the name of "Norway pine" (although it is entirely different from the tree so-called in Europe, which latter is a kind of spruce, which the Canada red pine is not). This red pine (P. resinosa) is further described by Laslett, in terms as to its useful qualities, identically the same as those applied by Hurst to the P. rubra. Are these two distinct trees, or do both authors mean the same tree botanically considered, and the identical same wood considered commercially? This is another instance of the miserable confusion of timber terminology.—Woodenhead.

[10664.]—**The Late Decimus Burton.**—Can any of your readers inform me who succeeded to the practice of the late Mr. Decimus Burton, or what became of his plans? He built Holwood, Kent, in 1825. The former house belonged to Mr. Pitt, and I want to find if the present is exactly on the site of the old house.—Henry Wilson.

CHIPS.

As a memorial to Lieut. W. R. P. Hamilton, V.C., who fell at Cabul in 1879, it has been decided to reproduce in bronze, for erection in Dublin, the group by Mr. C. B. Birch, A.R.A., exhibited at the Royal Academy in 1880, now lent to the museum of Science and Art, Dublin, representing the young officer, with his sword in his right hand and his revolver in his left, striding over the body of a prostrate Afghan. The Hamilton Memorial Committee estimate the cost at 2,000 guineas.

The work of rebuilding the Roman Catholic Cathedral at Edinburgh, after the recent fire, has been so far advanced, that now the two aisles are completed, and on Sunday next, these and the nave will be solemnly re-dedicated by the Archbishop. The rest of the building will be proceeded with immediately.

The Glasgow Town Council have discussed the question of taking over the whole of the tramway system within Greater Glasgow, and have resolved, by fifty votes to six, to take over all the lines on termination of the lease, two-and-a-half years hence. For the last ten years the tramway company has paid 9½ per cent.

Father Nugent has purchased from the Liverpool Corporation some disused baths and wash-houses in Paul-street for £1,500, and these premises are about to be reconstructed to serve as a Roman Catholic refuge for fallen women. Messrs. Ware and Rathbone, of Dale-street, Liverpool, are the architects, and the contract has been taken by Mr. G. C. Beecham, of Paradise-street, in the same city.

The completion of the new vicarage of St. Michael and All Angels, Bishopston, near Bristol, has just been marked by a benediction service. It occupies a fresh site, and on that formerly occupied by the old vicarage it is hoped next year to add a north aisle, transept, organ chamber, and vestries. The building has been erected by Mr. Wilkins, the architect being Mr. Beavan, also of Bristol. The cost has been upwards of £2,100.

The Bishop of Wakefield unveiled on Friday a new reredos and memorial window in St. Mary's, Barnsley. The reredos, of carved wood, painted in Indian red, with chocolate stencillings and gilded on its more prominent parts, is from the designs of Mr. G. F. Bodley, A.R.A. The window, a three-light, by Ward and Hughes, of London, has in the base the arms of the sees of York and Wakefield and the Strafford family.

The main water supply for Grangemouth, N.B., was inaugurated last week. The works have cost £4,000, and furnish 320,000 gallons or 50 gallons per head per day.

Legal.

ARCHITECTS' AUTHORITY.—III.

The plans and specifications for a building ar of course, part of the contract, and are equal binding upon the owner, the builder, and t architect himself. As soon as he goes outsi these plans, &c., he is getting beyond h limited authority, and the builder who acts up orders will, in effect, be doing so at his own ri —at all events, as far as the owner is concerne The architect's duty is to supervise the buildi and works in accordance with the statements to his authority contained in the contract, wi its plans and specifications attached; and if gives orders not covered by this written descri tion of his powers as agent, he will do so on h own responsibility and at his own perso liability, unless he gets special authority fr his client beforehand, or a clear ratificati afterwards. A building owner may leave t amplest discretion to his architect, and thus makes him a general agent as to the buil ing, and gives him a free hand practically pledge his credit with the builder. It about the burning question of extras that t difficulty often arises. Broadly speaking, architect has no general authority to order certify for extras. The contract may provi for this specially, and then the clause doing will have to be construed as a part of the wh document. The principle of the whole matter that as a limited agent his power to order ext must be plainly proved before the owner can made liable. Here, again, it is for the build to read his contract, for otherwise he may fi he has carried out works which were not pr vided for, and for which, as extras, the archit had no authority. If this happens the own will not be compelled to pay unless his impli authority or subsequent ratification can be prov which are often matters of fact involving lo and costly litigation before they are settl Again, the architect would become persona liable if he ordered work in excess of authority; but to enforce such a legal liability always an unpleasant and frequently a diffic thing to do by any contractor who looks to futu work of the same kind.

Fred. Wetherfield, Solicitor
1, Gresham Buildings, Guildhall, E.C.

Note.—All questions for reply in this colu must be headed "Building News," and m reach my offices, as above, by *Tuesday* morni to insure answer same week.

T. H. W.—Payment.—Plans prepared, quantities out, and tenders obtained on proper instructions. Ow to tenders being too high, none is accepted; that be so, the owner must, of course, pay for the quantities, notwithstanding that you may have given an estim higher than the tenders, for an estimate is only a ma of judgment, and you cannot be held liable for an er in judgment if reasonable care and skill were exercis This would also, I think, apply to the damp walls—t is, if you were guilty of no actual negligence. The c course is to sue for the fees in the ordinary way, and him counter-claim if he chooses; but it is more t probable that he will abandon his counter-claim wh properly advised.

Builder.—Lease—Covenant to Repair.—The le contains the ordinary covenant to repair, and during lease further buildings are erected on another part of land, which were not contemplated when the lease granted. The question now arises, Is the lessee bound repair these new buildings in the absence of an exp covenant to keep in repair "any buildings to be th after erected on the premises"? I think not. In an case some general proposition was made that the le would be bound to repair the new buildings; but point was not actually decided, and does not appea have been since decided, so that it may probably be ta that, without an express covenant, the lessee would be liable.

A. C.—Building Contract—Penalties for Dela Having entered into a contract to complete the build by a certain day, and subjected yourself to a wee penalty in case it is not so finished, you now find have undertaken an impossibility, and that, owing some miscalculation, the work cannot be done in anyth like the stipulated time. The contract cannot be esca from, although the time stated may now seem altoget unreasonable, and the only course is to push on as fas possible, and get off with as small an amount for penal as possible.

Jack Plane.—1. The question of publishing the l articles appearing in this paper in book form has not been considered by me; but it is very likely I shall d later on. 2. An award, like any other document un seal, must be stamped within 30 days of execution. can of course be stamped at any time on paying the d and penalty of £10; but in regard to any instrum executed after 16th May, 1838, the Stamp Act of imposes, beyond the penalty, a fine of £10 on the pe whose duty it was to see that it was properly stamp unless a reasonable excuse for the delay or the omis to stamp is forthcoming.

LEGAL INTELLIGENCE.

IMPROPER USES OF A Pparty WALL.—ISAAC v. DARE AND OTHERS.—The plaintiff, a builder and lodging-house keeper, of Dorset-street, Baker-street, sued Mr. Hoare and the St. George's Residential and General Building Company to recover damages for damage to a wall, &c. The plaintiff was the lessee from Viscount Portman, who was also the owner of the adjoining ground, from which the houses which previously stood there had been removed. This land Lord Portman had let on a building agreement to Mr. Hoare, who sublet it to the St. George's Residential and General Building Company, who proceeded to erect a large building containing flats. In the course of the building operations the plaintiff's case was that the wall in question had been so used that it became damp, and rendered the rooms in the basement uninhabitable. He also claimed for loss of light. The case was heard some time time ago, and, in the Queen's Bench Division on the 12th inst., Mr. Justice Wrance gave judgment for the plaintiff against the company for £100, with costs. He held that the defendant Hoare was not liable.

IS DUROLINE A "COMBUSTIBLE MATERIAL?"—This case under the Building Acts, Queen's Bench Division. Before Mr. Justice Mathew and Mr. Justice C. L. Smith. Nov. 13, 1891. Roof Coverings. Wayne v. Wright. The District Surveyor of East Hackney (South) and North Bow, appellant v. the Manager of the Wire Wove Roofing Co., Queen Victoria-street, E.C., respondent. Mr. Horace Avory appeared on behalf of the London County Council, and Mr. C. F. Gill for the respondent.)—This was a special case, being an appeal against the decision of the magistrate taken by the London County Council in support of the District Surveyor, who had served a notice on the respondent for covering a roof with a material known as duroline, and which was said to be combustible, contrary to section 19 of the Act of 1855. The case before the magistrate was reported in the BUILDING NEWS of May 29, 1891, p. 763, and the chief points in the evidence were as follows: The Wire-Wove Roofing Co. had covered the roof of a building used as a storehouse in rear of 81, Victoria Park-road, with a material called duroline, which the district surveyor contended was combustible material, contrary to section 19 of 18 & 19 Vict. c. 122, which provides that the roofs of buildings shall be constructed as follows: that is to say, that the flat gutter and roof of every building and every turret, dormer lantern light, skylight, or other erection placed on the flat or roof thereof, shall be externally covered with slates, tiles, metal, or other incombustible materials; and that due notice having been given by the appellant to the respondent to do certain things, he had made default in doing them. Duroline is composed of woven iron wire, coated with an oleaginous compound, which is wholly waterproof and semi-transparent, and is used at the Royal Aquarium, Olympia, Doulton's, Pickford's and other places. It was proved by experiment in court that if a light be applied to the edge of a piece of the material, the coating will ignite and will burn away, leaving the wirework uninjured; and, when in a flat position, it can be ignited by pieces of hot coal or lighted stick being placed upon it; but that the longer it is exposed to the air the more difficult it is to ignite; and that a piece that had been in use for four or five years did not ignite when pieces of live coal were placed upon it. The chemist for the London County Council had given evidence that at a temperature of 320° Fahr. the material gives off inflammable vapour, and when placed in a vessel it burst into flame five seconds before wood ignites under similar conditions. No evidence was given that any fire had taken place where this material was used, and the witnesses called by the respondent had stated that it was safer than glass when used on skylights, because lighted objects which fall through glass would not fall through the surface foundation, and because, in case of a fire, although the oleaginous coating might be consumed, the wire network would remain and would prevent the rush of flame through. The appellant had given evidence that experiments tried by him had proved that the material would ignite readily, and therefore it could not be considered as incombustible, and that it was dangerous to cover roofs of buildings with such a material. Similar evidence was given by Mr. Thos. Blashill, superintending architect to the London County Council. The respondent contended that the said material as a whole was not capable of being consumed by fire, that therefore it was incombustible within the meaning of the statute. The magistrate found as a fact that part of the material—that is to say the oleaginous coating—was conbustible; that part of it—that is to say, the wire network—was incombustible; and he held, having regard to the objects and purposes of the statute, that the material, as a whole, was an incombustible material within the meaning of the statute. The question for the Court was whether he was right in this. No fresh evidence was adduced besides the evidence brought before the magistrate. Mr. Justice Mathew said the magistrate had evidence before him that this material was safer than glass, and the Court was also informed that no extra premium was charged by the fire insurance companies when this material was used instead of glass. But, notwithstanding that, the finding of the magistrate was conclusive. He found, as a fact, that part of the material was combustible. How could it be possible on that for the Court to say that it was incombustible? The roofing was formed with combustible material, which would ignite and burn away, as was clearly shown by the specimens laid before the Court. More than that, it gave off an inflammable vapour. It was impossible to say that it was incombustible. The magistrate ought to have convicted. The case must be remitted to him with the opinion of the court. It was worth observing that this was a case where the material was new, and not where it had been up for many years, which made it much less combustible. Mr. Justice A. L. Smith concurred, though with regret, as the evidence showed that in practice the material had not caused any fire during the six years it had been in use; but the Act was clear. The roofs were to be covered with "slates, tiles, metal, or other incombustible materials." Could that include material which was partly combustible and partly incombustible? Clearly not.

ALLEGED NEGLIGENCE OF A BUILDER.—Before his Honour Judge Bedwell and a jury an action was heard at Scarborough in which Dr. C. F. Hutchinson sued Mr. W. Robson, builder, also of that town, to recover £38 17s. 3d., damages sustained to his property owing, it was alleged, to the negligence of the defendant. Defendant was erecting a row of houses adjoining Huntercombe Cottage, the property of the plaintiff, on the 26th August last, when the gale caused a gable end and a stack of chimneys to fall on the roof of Huntercombe Cottage, doing much damage to the interior of the house. It was urged for the plaintiff that the means taken to support the gable in a storm were inadequate, and that the defendant had thereby been guilty of negligence. Practical witnesses were called on both sides, those for the defendant contending that all ordinary and reasonable precautions had been adopted. The jury, after some disagreement, found for the defendant, and his Honour certified for costs.

APPOINTMENT OF ARBITRATOR. — EYRE v. LEICESTER CORPORATION.—In the Queen's Bench Division on Monday, this case came before the Lord Chief Justice and Mr. Justice Wright, sitting as a divisional court, on appeal from a decision of a Master of Chambers, confirmed by Baron Pollock.—Mr. Jones, who appeared for the plaintiff in support of the appeal, said the plaintiff, who was a contractor for the construction of main sewerage works at Leicester, had received his final certificate on the conclusion of the finishing of the contract, but there remained an unsatisfied claim for extras amounting to nearly £7,000. A clause in the contract provided for the reference of any questions in dispute to a sole arbitrator, and the plaintiff wished the matter settled in the way provided for, and as the defendants declined to concur in the appointment of an arbitrator, he went, in accordance with the provisions of the Arbitration Act of 1889 before a Master to ask for the appointment of an arbitrator; but the defendants contending that the notice served upon them was not in accordancce with the Act, the Master refused to make the appointment, and on appealing to Baron Pollock, the learned judge confirmed the Master's decision. The ground upon which both Master and Judge based their decisions was that the plaintiff had not complied with the Act, which required that notice should be given to the defendant to "appoint" an arbitrator, whereas what the plaintiff actually did was to give notice to the defendants to "concur" in the appointment of an arbitrator. The learned counsel submitted that both Master and Judge were wrong here, as it would be contrary to the intention of the Act and absurd to suppose that one side to an arbitration should have the power uncontrolled to appoint an arbitrator. If that were so, he might appoint a chimney-sweep. (Laughter.) The intention of the Legislature in providing for these arbitrations by a sole arbitrator was that each party to the dispute should be satisfied as to the character and competence of the arbitrator, and if they failed to agree, provision was made for an official appointment by a Master or Judge in Chamber. But the real fact here was that the defendants objected to arbitration altogether, and wanted to drive the plaintiff into court to try an action at law, whereas the claim must eventually go before a referee or arbitrator.—Mr. Toller, for the defendants, after arguing in support of the technical points on which the Master had ruled, contended further that this was not a case for arbitration. Out of the £7,000 claimed by the plaintiff there was only a sum of £1,277 for *bonâ fide* extras, and out of that the defendants had a claim for £480, due to the Corporation for gas, water, &c., whilst the remainder of the £7,000 was made up of claims for damages sustained by the plaintiff in consequence of leaky water-pipes, the failure of the defendants to carry off excessive rainfall, the unreasonable refusal to allow the plaintiff to construct various sections of the sewerage concurrently, and the stoppage of the works. All these things were questions of alleged negligence on the part of the defendants, and not such questions as were contemplated by a submission to arbitration. But if the plaintiff would formulate his claim, the case could go to an official referee. Their Lordships decided that the Master and Judge below were wrong on the technical point on which they ruled, and therefore the case must go back to the Master to say—First, if there should be an arbitration at all, and if there should be, then to appoint the arbitrator, their lordships expressing no opinion as to whether the questions in dispute were proper ones for arbitration or not. Costs to be left to the tribunal which should ultimately deal with the case.

NO WARRANTY AS TO DRAINAGE.—BURSTAL v. BIANCHI.—(Queen's Bench Division, Nov. 7, Before Mr. Justice Charles.)—The plaintiff, Mr. Henry John Burstal, a railway contractor of Walbrook, residing at the Retreat, Woodford, Essex, sued the defendant, the owner of the latter house, which the plaintiff occupied under a lease, for damages for its defective sanitation, alleging that there had been a warranty. The defendant denied the alleged warranty, and did not admit that there was any defect in the drainage when the house was taken. The plaintiff's case was that before he entered into an agreement to take the house for seven years at £60 rent, with the option of terminating the tenancy at the end of three years, the defendant undertook that the drainage arrangements should be in perfect order, and that upon the faith of that the plaintiff entered into the agreement. Shortly after plaintiff entered into possession he was, in consequence, as alleged, of defective drainage, taken ill with sore throat, and was laid up for two months. For defence it was submitted that the agreement which provided that the tenant should pay the expenses of internal decorative repairs, and that the landlord should maintain the fabric, could alone be regarded, and as it contained no warranty the plaintiff could not recover. After hearing the plaintiff's evidence, his lorkship gave judgment for the defendant, with costs.

SURVEYORS' FEES.—PETERS v. BREMNER.—In the City of London Court, last week, Mr. Richard Peters, architect and surveyor, 72, Wool-exchange, sought to recover the sum of two guineas from Mr. S. Bremner, 7, Moorgate-street, for a survey. The defendant said the fee was payable subject to an advance of £500 being made, which was never done. He had already once paid a survey fee—not to the plaintiff—and this was an attempt to get the money out of him over again. The plaintiff said that was not so. He was instructed by the defendant to make a survey of four houses in Baker's-road, Farringdon-street. The defendant wanted a Mr. Dodd to make an advance upon them, and Mr. Dodd would not carry out the advance unless he (plaintiff) made a satisfactory report. To do this the defendant instructed him to make the survey, and now did not want to pay. The houses were in such a bad condition that the advance was not made. The Registrar found for the plaintiff for the sum claimed, with costs.

SURVEYORS' VALUATIONS AT ROCHESTER.—The Under-Sheriff of Kent and a special jury heard, on Thursday and Friday in last week, the case of Messrs. Truman, Hanbury, Buxton, and Co. v. the South-Eastern Railway Company. The plaintiffs were lessees and occupiers of storehouses and wharfage premises in the High-street, Rochester, and required by the Company to extend their station accommodation. For the claimants Sir J. Whittaker Ellis estimated the amount of compensation to be paid for disturbance, &c., use of temporary premises, and increased cost of carrying on the business in new premises at £10,670. Mr. Henry Currey, Mr. Tewson, and other surveyors gave evidence in support of this claim. For the Railway Company there were called Mr. E. Ryde, and Messrs. E. H. Bousfield, A. R. Stenning, and other surveyors, and Mr. Tootell, brewery valuer, who estimated the amount of compensation at from £3,000 to £4,450. The jury assessed the compensation at £7,000.

The Directors of the London, Brighton, and South Coast Railway Company have decided to promote a Bill in the next Session of Parliament, the main object of which is to obtain power to acquire certain important properties for the purpose of greatly enlarging their terminus at Victoria-station.

The foundation-stone of a new Roman Catholic church at Tranent was laid last week by Archbishop Smith. The church occupies a site at the eastern end of the village, and, with the presbytery, or priests' house, which is to be attached to it, will cost £1,650. The church will be in the Early Gothic style of architecture, from designs by Mr. Biggar, Edinburgh, will consist of nave and chancel, and will be seated for about 300 persons.

WATER SUPPLY AND SANITARY MATTERS.

Eccles Local Board.—Mr. Arnold Taylor, inspector to the Local Government Board, held an inquiry at the town-hall, Eccles, on the 12th inst., into the application of the local board to borrow £6,000 for purchase of land for sewage-disposal purposes. Mr. H. Leonard Hinnell, C.E. (Proctor and Hinnell, Bolton, who have been instructed by the board to prepare a scheme of sewage disposal works), explained the nature of the ground, and its suitability for the purpose intended.

Kilmarnock Water Supply.—The town council considered, on Friday, three alternative schemes regarding the proposed purchase of the water company's works, prepared by Mr. Wilson, C.E. The first was the extension of existing works at North Craig, with improvements, at a cost of £19,800; the second, a new reservoir at Glenleitch, at £16,800; and the third, making a new reservoir at Dunton Burn, at a cost of £18,250. The committee recommended the adoption of the last-named scheme, which, after a long discussion, was carried by a majority of 15 to 7. This will accordingly be scheduled in the Bill about to be introduced into Parliament to complete the purchase of the works.

Leighton Buzzard Water Supply and Sewage.—The schemes submitted in the competition which took place last year by Mr. H. Bertram Nichols, C.E., of Birmingham, and which were adjudged the best by the late parochial committee, have finally been adopted by the newly-constituted local board, and Mr. Nichols has unanimously been appointed engineer to carry out the works. In the water supply scheme, it is proposed to pump the water from the Lower Greensand, the requisite pressure and storage being obtained from a water-tower. The sewerage scheme is partly on the "Shone" system, four ejector stations being proposed, by which means the whole of the sewers are confined to the public roads. The main outfall sewer, with various subsidiary sewers, will gravitate to the sewage purification works, which are proposed to be constructed on land to the north of the town, above flood-level of the river Ouze. This was demonstrated during the recent floods, when a visit was paid by the members of the board to the site chosen for the outfall works. The treatment proposed for the disposal of the sewage is that known as the International process, "ferozone" being the precipitant; the treated sewage from the tanks afterwards passing through specially prepared "polarite" filter-beds. The estimated cost of the works is about £15,000, and the present population of Leighton Buzzard is about 7,000.

A new workmen's club has been erected at Lowood, and special attention has been paid to the ventilation, which is carried out on the Boyle system, the latest improved form of the self-acting air-pump ventilator being adopted for the extraction of the vitiated air.

At Derby the Midland Railway Company are reconstructing the entire frontage of the station, while the railway bridge over the Derwent close by is being doubled in width. In Railway-terrace, opposite the station, a Railway Institute, providing a hall with stage and proscenium, and seated for 600 people, is being built for the same company.

The ancient 15th-century screen in Manaton Church, which is situated at Dartmoor, five miles from Moretonhampstead, is to be restored. The screen is one of the finest in Devonshire; it runs the whole width of the church, and still has a good deal of the original colouring. The restoration has been placed in the hands of Mr. Edmund Sedding, architect, Plymouth.

A new public clock, striking the hours on the large or tenor bell, and showing the time on one large external dial, has been fixed in Collingtree parish church, Northants. The clock has Lord Grimthorpe's double three-legged gravity escapement, and compensation pendulum for variations of temperature. The work has been carried out by Messrs. Wm. Potts and Sons, clock manufacturers, of Guildford-street and Cookridge-street, Leeds, from instructions given them by the architect, Mr. M. H. Holding, A.R.I.B.A., Corn Exchange, Northampton.

Dr. Jackson, the borough coroner, held an inquiry at 8, Broad Green-avenue, Croydon, on Monday, into the death of John Edward Smith, 67, a retired builder, lately residing at the above address, who died on Saturday afternoon. According to the evidence of the widow, some time since the deceased had a paralytic seizure, which made him very peculiar, and he afterwards suffered from religious mania. He had a building erected at the bottom of his garden, in which "to study religion," and he recently told the witness that he had received a message from heaven. On Saturday afternoon he complained of faintness, and then died. Dr. G. Fleming stated that cause of death was syncope from heart-disease. The jury returned a verdict accordingly.

Our Office Table.

At the closing meeting of the London School Board, held yesterday (Thursday) afternoon, the Rev. W. Copeland Bowie asked Mr. Helby, the Chairman of the Works Committee, whether it was a fact that in the case of the following six schools tendered for in 1884-5 the number of tenders was as follows:—Trafalgar-square, 19; Smeed-road, 23; Rutland-street, 21; Malmesbury-road, 23; Upper Kennington-lane, 27; High-street, Shadwell, 26; whereas in 1888-91 the number of tenders for a like number of schools was as follows:—Randall-place, 3; Trinity-street, 8; Lavender Hill, 8; Cubitt Town, 8; Ancona-road, 8; Church-street, 6. He also asked whether it was a fact that at the present time the contractors named are engaged in carrying out contracts for the Board to the amounts given, and are still being invited to tender:—Mr. H. Lovatt, £54,188; Messrs. Bull and Sons, £75,983; Messrs. Lawrence and Sons, £85,923; Mr. Charles Cox, £71,254; and, if so, whether the present system does not create an unfair monopoly, as well as bring in provincial firms to the exclusion of London contractors, and the consequent reduction of employment to Metropolitan workmen? Mr. Helby declined to answer these and other more personal questions in open meeting, suggesting that the best plan, in his opinion, would be that such matters should be dealt with in committee.

A scheme is on foot at Oxford for the creation and endowment of a New Central Museum of Art and Archæology, which is to incorporate both the present Ashmolean and University Galleries. The antiquities formerly scattered about the various University buildings have been placed together of late years, though the coins and marbles are still divorced from the rest. A cast collection for the study of ancient sculpture has been made and arranged, and Classical Archæology has been brought within the University curriculum. The Ashmolean Museum has been reorganised and refitted, and during the last six years the collection itself has more than doubled. This progress has been largely due to the impulse supplied by the gift by Mr. C. D. E. Fortnum of a large part of his collection, illustrating every period of art from the earliest Egyptian to the most perfect monuments of the Italian Renaissance. Numerous other donations have been made to the Museum, within the last two years alone over 2,000 objects having been added to the collection. Mr. Fortnum proposes, subject to a small life annuity, to hand over at once £10,000 towards the new museum, and announces that he has bequeathed the rest of his collections, together with his considerable archæological library, to the University.

Mr. Henry Tompkins writes to the daily press complaining that workmen are being employed at the British Museum in touching up the hieroglyphics on the Egyptian monuments with red paint. An example of what comes from "touching up" an antique is, he remarks, to be seen in Sir John Soane's Museum, where the alabaster sarcophagus—one of the finest in Europe, found by Belzoni—has had all its hieroglyphics, about twenty thousand, filled in with common black paint, and is now irreparably injured. This act of Vandalism was, he asserts, done by a temporary curator, now dead some years, who knew nothing of hieroglyphics. Mr. Tompkins says he saw the sarcophagus several times years ago, when there was no paint on it, and Belzoni's account agrees with this. Strangely enough, in the official catalogue of Sir J. Soane's Museum it is stated that "all the figures and lines have been filled up with blue paint, made of some preparation of copper," while the truth is the pigment is a common black paint, as any one can see.

After more than twenty years of experiments, frequent changes of engineers, and several modifications of plans, Mr. Lewis M. Haupt, C.E., reports to an American engineering journal that the harbour works at Galveston have been a total failure. Up to the present time the expenditure has exceeded £460,000 sterling, and the estimated cost for completion is four times that amount. Indeed, Mr. Haupt declares that the injuries caused by the works are actually greater than the benefits, and that the difficulties in the way of securing a deep-water channel over the outer bar have been greatly increased rather than diminished, while it is proposed to apply 6,200,000 dollars (£1,240,000) to a continuation of these experiments on a plan which must prove fatal.

A well-known and reliable public timber sale, where builders and others can be sure of buying planks, deals, battens, floorings, matchings, mahogany, oak, walnut, &c., of good quality, at reasonable prices, is a desideratum. Messrs. Goodman, Hughes, and Co., the well-known timber merchants, are going to open such at their new auction mart, 44 to 47, Bishopsgate-street Without, and the first sale will take place next Tuesday, at noon. We venture to predict that these sales will soon become the leading fixtures of their kind, and the invariable resort of builders in search of really cheap and reliable goods.

MEETINGS FOR THE ENSUING WEEK

Monday. — Surveyors' Institution. 'The Title to Land: its Registration and Transfer," by R. J. Adams. 8 p.m.
Leeds and Yorkshire Architectural Society. Address by the President, H. Thorp. 7.30 p.m.

Tuesday.—Society of Architects. "The Society's Excursion into Belgium" (illustrated), by A. T. Middleton, Secretary. St. James's Hall. 8 p.m.
Institution of Civil Engineers. Discussion on papers on "Portland Cement," by H. K. Bamber, A. E. Carey, and W. Smith. 8 p.m.
Glasgow Architectural Association Smoking Concert. 8 p.m.

Wednesday. — Society of Arts. "Measurement of Lenses," by Prof. Silvanus P. Thompson, D.Sc. 8 p.m.
St. Paul's Ecclesiological Society. "Enamels in Connection with Ecclesiastical Art" 7.30 p.m.

Friday.—Architectural Association. "John D. Sedding: his Work and Influence," by W. Wilson. 7.30 p.m.

CHIPS.

At Yeovil on Wednesday week Mr. Sam Cridland, a local builder, was examining a well at the police station, when the earth suddenly gave way, and he fell into the water beneath and was drowned.

A new Conservative Club at Huddersfield was opened on Monday. It has been erected and furnished from designs by Mr. I. Hodern.

The Half Moon Hotel at Gateshead has just been reconstructed and enlarged. The architect was Alderman Dunn, of the firm of Messrs. Thompson and Dunn. Messrs. T. and R. Lamb were the contractors.

Mr. Sydney Butler, of Park Works, Langley-lane, Vauxhall, S.W., has recently opened a timber shop there, where all kinds of wood-working machinery, circular and band sawing, planing, moulding, &c., may be seen in operation.

Memorial stones of a Wesleyan chapel were laid at Colan, near St. Columb, Cornwall, last week. Mr. John Ennor, jun., of Newquay, is the architect, and Messrs. Tippett, of St. Columb, are the contractors.

The Bishop of London will be presented on (Friday) afternoon with a pastoral staff, designed by Sir A. W. Blomfield, A.R.A., and executed by Messrs. Carrington, of Regent-street, W.

Buxton-road Wesleyan Chapel, Huddersfield, was reopened on Wednesday week, after renovation and reseating. The works have cost £2,000, and have been carried out by local contractors from plans by Mr. E. W. Lockwood.

Memorial stones of a new Wesleyan Chapel were laid at Martinstown, Dorset, last week. Mr. John Wills, of Derby, is the architect, and Messrs. Davis and Son, of Dorchester, are the builders.

The decorations of the baptistery of the Church of the Holy Nativity, Knowle, Bristol, have just been completed by the filling-in of the six windows with stained glass, and the gilding and decorative painting of the semi-dome which forms the vault. The work has been designed and carried out by Messrs. Joseph Bell and Sons, of College Green, Bristol.

Mr. Ernest Beckett, M.P., laid, on Tuesday, the foundation-stone of the new schools to be provided for the parish of St. Chad's, Far Headingley, at a cost of £2,000. The buildings will include a room 48ft. by 32ft., and are to be of brick, with stone dressings and red-tiled roofs. The architects are Messrs. Perkin and Bulmer, and the contractor Mr. Thomas Bateson.

A volunteer drill-shed at Uppermill, Saddleworth, near Huddersfield, was opened last week. It has cost £1,000, and was built by Mr. Isaac Dixon, of Liverpool.

Trade News.

WAGES MOVEMENTS.

ERDEEN.—The strike of Aberdeen plumbers has lasted three weeks. The masters on Saturday ed ½d. per hour of advance from 1st March. men demand an immediate increase of 1d. per .

CHIPS.

Rousseau, the distinguished Director-General e Belgian Department of Sciences, Literature, Fine Arts, died at Brussels on Sunday. He had s younger years been one of the best writers on Paris *Figaro*.

ssrs. Jones and Willis have just completed fixed a wrought-iron screen across the chancel ll Saints' Church, South Acton, under the rintendence of Mr. Edward Monson, jun., tect. They have also in hand a screen of ar character which, when completed, will be at St. Clement's Church, Fulham Palace-

ward Clarkson Tattersall, described, we trust ror, as an architect, was remanded at the efield Police-court on Monday on a charge of ig threatened his father, a plasterer, who for al years was a member of the Wakefield Council. It was stated that the prisoner een for some time addicted to drink.

e foundation-stone of a new town-hall for , Lancs, was laid on Friday. The building e Gothic in style, and the chief room will be by 28ft. The design was prepared by Mr. nson, surveyor to the Colne local board, and stimated outlay is £8,000.

e new police buildings in Oriel-road, Bootle, opened on Monday. They have been con- ted from plans by Mr. C. H. Anderson, the actors being Messrs. George Wood and Son, ootle, and the clerk of works Mr. Worrall. tyle is Classic, and the outlay has been over 00.

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TENDERS.

*** Correspondents would in all cases oblige by giving the addresses of the parties tendering—at any rate, of the accepted tender: it adds to the value of the information.

ALDERBURY, NEAR SALISBURY.—For lodge, coach-house, stabling, &c., for Mr. W. M. Osmond, of Calcutta and Salisbury. Mr. F. Bath, F.R.I.B.A., F.S.I., architect. Quantities supplied:—
Mitchell, C., Woodfalls, Salisbury (accepted for all save stable).

BAUMBER.—For the restoration and reseating of the parish church:—
Walter and Hensman, of Horncastle (accepted).

BRISTOL.—For reconstructing the Perry-road curve and other alterations to the Drawbridge line of tramways:—
Krauss, A., Bristol (accepted).

BROMPTON.—For shop fittings, &c., at the Albion Bakery, No. 213, Brompton-road, S.W., for Mr. E. P. Joyce. Mr. W. A. Burr, M.S.A., 65, Chancery-lane, M.S.A., architect:—

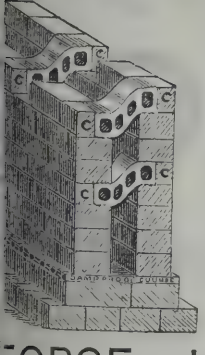
Larke and Son	£244 0 0
Stevens Bros.	227 0 0
Hocking (accepted)	195 0 0

CHRISTLETON.—For the erection of a Primitive Methodist Sunday-school for 150 children:—
Youd, J., Rowton (accepted).

DEVONPORT.—For building a board school in Stuart-road:—
Lethbridge and Sons, Plymouth (accepted) £7,000

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DOVER.—For new premises, Market-square and Market-street, Dover, for Mr. H. Hart. Mr. E. W. Fry, architect. Quantities by the architect:—

Webster, Folkestone	£5,850	0	0
Wise, J. J., Deal	5,770	0	0
Denne, W. and J., Walmer	5,650	0	0
Denne, G. and Son, Deal	5,450	0	0
Lewis and Son	5,425	0	0
Hayward & Paramour, Folkestone	5,398	0	0
Stiff	5,183	0	0
Bromley	5,040	0	0
Dowle, W. T.	4,946	0	0
Richardson	4,800	0	0
Lewis, W. G.	4,740	0	0
Austen and Lewis*	4,719	0	0

* Accepted with modifications.
Rest of Dover.

DUXFORD.—For new farmstead at Duxford Grange, Cambs. Mr. J. B. Corby, F.S.I., Stamford, architect:—

Glasscock and Son, Bishop's Stortford	£1,984	0	0
Turner, Wainfleet	1,885	0	0
Bell and Son, Saffron Walden	1,795	0	0
Thoday and Son, Cambridge (accepted)	1,575	0	0

GREENWICH.—For the erection of a school in Mulgrave-place, Greenwich, to provide accommodation for 805 children, for the London School Board:—

Chappell, J. T.	£19,931	0	0
Mowlem, J., and Co.	19,574	0	0
Lathey Bros.	19,524	0	0
Boyce, T.	18,400	0	0
Holliday and Greenwood	18,257	0	0
Hart Bros.	17,863	0	0
Downs, W.	17,416	0	0
Foster and Dicksee	17,278	0	0
Hobbs, J. W., and Co. (Limited)*	17,210	0	0
Holloway Bros†	16,975	0	0

* Accepted.
† Withdrawn, owing to an error of £653 15s.

[(*a*) Cost of school buildings and closets, £12,610; (*b*) tar pavement and covered playgrounds, £770; (*c*) boundary walls and gates, £980; (*d*) three teachers' rooms, £300; (*e*) schoolkeeper's house, £1,280; (*f*) glazed bricks, £785. (*g*) Extra depth of foundations, £485; for whole of brickwork to be built in cement add, £290; total, £17,5'0. Cost per head of (*a*), £15 13s. 3d; total cost per head, £21 14s. 9d.]

HAM, SURREY.—For the erection of an infant school in East-street. Mr. Harding, of Ham, architect:—
Potter, J. B., Sutton (accepted) ... £1,187 0 0

HELSCOTT.—For alterations to Helscott Bridge, for the Cornwall County Council:—
Hobbs, J. D. (accepted) ... £136 0 0

HERNE BAY.—New slaughter-house, stabling, and premises, Richmond-street, Herne Bay, for Mr. F. W. Boulding. Mr. H. Farley, Richmond-street, Herne Bay, architect. No quantities:—

Admans, G.	£375	10	0
Taylor, E.	369	12	0
Ingleton, A. S.	348	0	0
Welby, C.	310	0	0
Adams, E. T. J. (accepted)	260	0	0

All of Herne Bay.

LONDON.—For additions to the Hive, Anson-road, Tufnell Park, for Mr. E. F. Bradley. Messrs. Truefitt and Truefitt, 5, Bloomsbury-square, W.C., architects:—

Bird, S. G.	£352	10	0
Hunt, J.	297	0	0
Lown, R. D., and Sons (accepted)	247	10	0

LONDON.—For new drainage system at 405 and 407, Holloway-road, for the London and South-Western Bank, Limited. Messrs. Truefitt and Truefitt, 5, Bloomsbury-square, W.C., architect:—

Stuart, G.	£159	0	0
Lown, R. D., and Sons	152	0	0
Hunt, J. (accepted)	132	0	0

LONDON.—For additions to No. 434, Holloway-road, for Mr. F. Matthews. Messrs. Truefitt and Truefitt, 5, Bloomsbury-square, architects:—
Hunt, J. £230 0 0
(No competition.)

LONDON.—For additions and alterations to the public baths, Marshall street, W. Messrs. Spalding and Cross, architects:—

Mowlem, J., and Co.	£7,315	0	0
Downs, W.	7,253	0	0
Stephens, Bastow, and Co.	7,199	0	0
Kellett, A.	7,035	0	0
Minter, F. G.	6,950	0	0
Outhwaite, J., and Son	6,875	0	0
Brooks, W.	6,800	0	0
Neave and Neave	6,712	0	0
Robson, J. F.	6,673	0	0
Batley, R. G.	6,624	0	0
Smith, J., and Sons	6,586	0	0
Nightingale, B. E.	6,547	0	0
Balaam Bros.	6,468	0	0
Jones, Richards, and Co.	6,397	0	0
Brass, W., and Son	6,393	0	0
Rowe, Bros.	6,350	0	0
Holloway, H. L.	6,333	0	0
Castle, W. and H.	6,291	0	0
Gould and Brand	6,280	0	0

MALVERN.—For manager's residence for Messrs. Schweppe and Co., Limited, in connection with their C wall Factory. Quantities by Messrs. Morris Evans a Sons, 7, John-street, Adelphi. Messrs. Truefitt a Truefitt, 5, Bloomsbury-square, W.C., architects:—
Wood, J., and Sons, Worcester ... £1,200 0 0
(No competition.)

NEWPORT, MON.—For extension to the Newport Mo Lodging House Co.'s premises, Dock-street, Newpo Mon. Mr. E. A. Lansdown, 26, High-street, Newpo Mon., architect. Quantities by the architect:—

Richards, E.	£2,700	0	0
Linton, J.	2,495	0	0
Blackburne, W.	2,289	0	0
Morgan and Roberts	2,150	0	0
Price, W.	2,074	0	0

NORTHUMBERLAND.—For the extension of the n infirmaries at the Northumberland County Luna Asylum, for the County Council:—
Building works:—
Howe, J., West Hartlepool (accepted) ... £4,312 9
Engineering works:—
Somerset, J. A., Newcastle (accepted) ... 290 0

PONTYPOOL.—For the erection of the Hanbury Assem Rooms, arcade, shops, &c., at Pontypool. Mr. E. Lansdowne, 26, High-street, Newport, Mon., archit Quantities by the architect:—

Welsh, Hereford	£6,490	0	0
Price, W., Newport	5,788	0	0
Parfitt, H., Pontnewydd	5,389	0	0
Stephens and Bastow, Bristol	5,299	0	0
Morgan and Evans, Pontypool	4,997	0	0
Linton, J., Newport (accepted)	4,895	0	0

RUDGWICK, SUSSEX.—For the erection of private ho Mr. W. H. Harrison, A.R.I.B.A., architect. Quanti by Mr. F. C. Hunt:—

Andrews and Nanson	£2,377	0	0
Hunter and Bryant	2,007	0	0
Chinchen, F. T. (accepted)	2,000	0	0

SUNNINGDALE.—For servants' hall at Broadlands, for C. D. Kemp Welch. Messrs. Truefitt and Truefitt Bloomsbury-square, architects:—
Norris and Son £234 0 0
(No competition.)

SUNNINGDALE.—For new dairy at Broadlands, for C. D. Kemp Welch. Messrs. Truefitt and Truefitt Bloomsbury-square, W.C., architects:—
Norris and Son £119 0 0
(No competition.)

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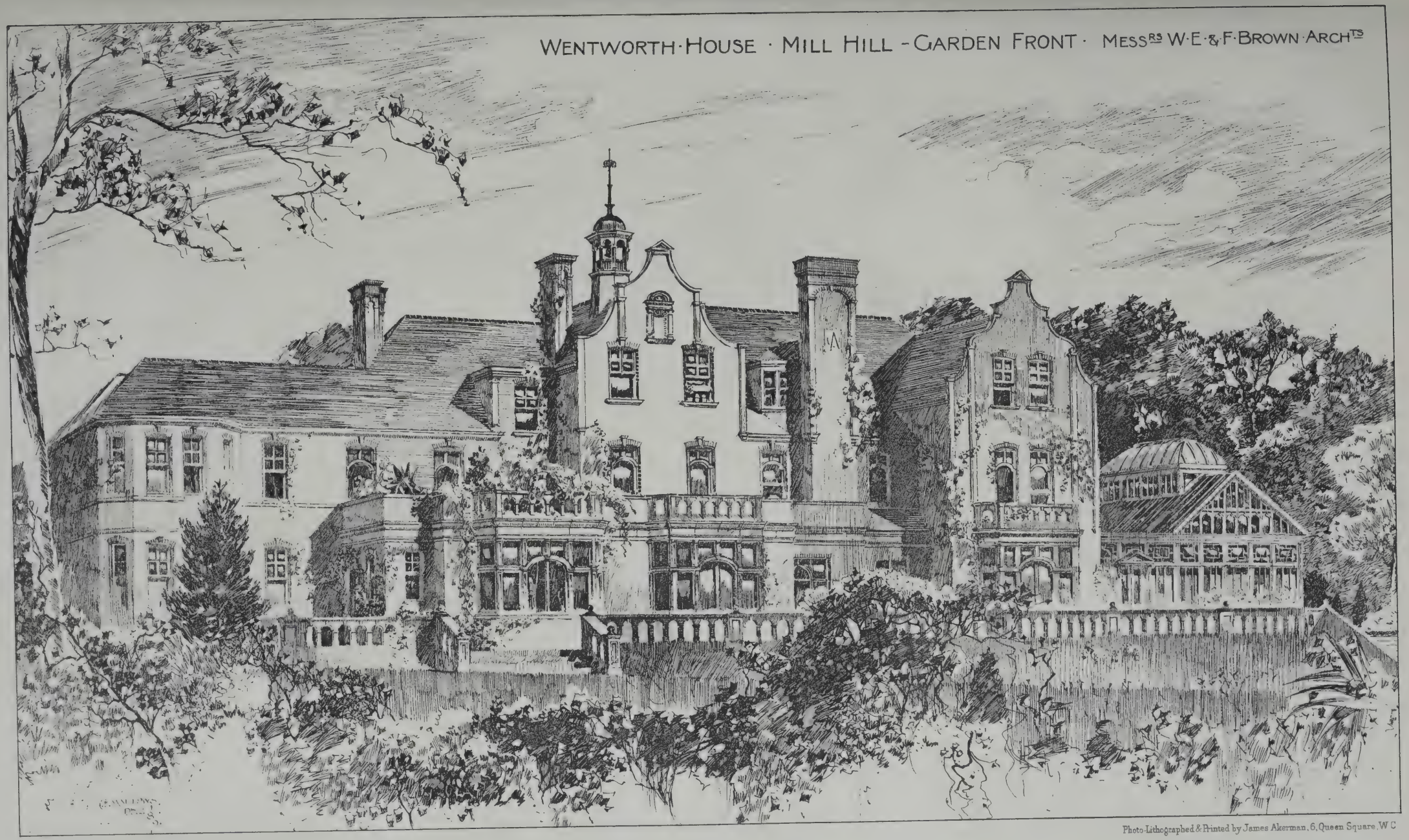


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ASTON WEBB, ARCHITECT.



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VOL. LXI.—No. 1925.
FRIDAY, NOVEMBER 27, 1891.

PROFESSIONAL AUTHORITY.

LIENTS and committees have often a strong inclination to expect more from ir architect than the powers they have ted in him entitle them to ask for. example, a limit of cost strenuously sted upon restrains very much the means pportunities of carrying out an effective lding; the client is disappointed with the ılt, and thinks he might have had some- ıg better; or perhaps a plan of the ıloyer is closely followed, which in the does not satisfy him, and he blames his iser for letting him have his own way. both cases the architect has been too scientious and easy, and for his pains ı an unmeasured share of criticism or se. If he had exceeded the cost in first instance, or declined to agree his employer's ideas in the second, he ht have been praised, at least, for his l and independence, even if he had for- ed his reputation as an inexpensive itect. But he can better afford to be ught extravagant than unskilful. The nsistency is in those who employ pro- ional men, and then ignore their advice recommendations. There are other 's in which a building owner may impose rictions; but these two, as to cost and e, are the most common. The blame in er case is cast upon the architect. The ider at once considers it is the duty of professional man to adopt the best plan, advise his client, and, after all, this ion is right, and founded upon a proper v of the duties of a professional man. en a wealthy speculator had not long e to pay a round sum to his archi- for erecting a residence equal to expectations of a millionaire's residence, ı although the estimate alleged to be ally given had been exceeded, the public erally agreed to the verdict. The owner ted a sumptuous mansion at a small ; he gave his architect a *carte blanche*, afterwards grumbled at the expenditure. other words, his expectations far ex- ed the sum he wished to expend. The ience of some people is amazing. They t to obtain more than they can, or ought, easonably expect, and the luckless archi- if he does anything to assist their itious ideas, by exceeding the estimate, verely taken to task; or if he restrains r extravagance by keeping within the ıds, he gets blamed for producing a bare imperfect building. But a question arises, pressing in its direct bearing he profession, which is, What should be ttitude of the architect in relation to cer- matters of design or building which may en to come up? Whether he is justified ıcting on his own responsibility in ring what he thinks ought to be done he efficiency of the building; or whether hould follow the contract specification so ly as rather to deprive the building of hing that would add materially to the n or the advantage of his client? The tion we have hinted at is one which very ly concerns the profession in these days en competition, and the encroachments e by those who do not strictly belong to anks. In a word, the principle at stake ıe authority vested in the architect to ove or alter his design as he thinks ssary. Looking at the question from rt point of view, or as the practice of artists suggests, the architect ought, it d seem, to have certain discretionary power given to him. The painter, the sculptor, or decorative artist each is free to change or modify his composition or his scheme of decoration as he proceeds, and why should the architect be fettered? But it will be said that painters, sculptors, and decorators are not tied and restricted by contract; the architect has his own way at first till the contract plans and specifications are prepared, after which he is bound to observe them. Again, from a legal point of view, many objections could be taken against any alteration or modification being made after the contract has been signed by the parties. The contract once settled between building owner and contractor, the architect is under an obligation to his client to see that the work is carried out strictly as agreed to. From the point of view of contract and its legal obligations, the architect is denied the freedom which other artists enjoy. Buildings are costly, and alterations involve sometimes considerable expense.

But there are circumstances under which the architect is called upon to act. He sees some modification or deviation absolutely essential to the work; he sees the importance of ordering deeper or more costly foundations, of adding to the thickness of a wall, or of doing something which the progress of the work actually demands. The question occurs to him whether he should consult his client or make the necessary improvement on his own responsibility. Legally, the position of an architect under these circumstances is that of a "general agent"; he has assumed authority independent of any special agreement to do that which he thinks the best, and to this extent can bind his employer by his orders; but, unfortunately, the law is not very explicit as to how far it would be safe for an architect to make alterations or to bind his employer. According to one decision ("Cooper v. Langdon"), this "agency" idea is not very strong, as judges take different views of the powers vested in an architect as agent. Both the decision given in the above case and that of "Rex v. Peto" appear to indicate that an architect must show an authority to bind his client by any deviation. In the first-named case the architect gave directions to the builder to substitute a stone wall for one of brick without the consent of the employer, and the latter brought an action against builder for breach of contract. In the second case the deviation was the omission of piling in the foundations, and it was held by the Court that the architect's power to order "additions or omissions" gave him no authority to order a variation. If these rulings are taken for what they are worth, it would appear to be very hazardous for any architect to order a variation without consulting or obtaining the permission of his employer. On the other hand, a "general agent" is supposed to possess some discretion irrespective of any express agreement, or, as one authority has stated, "a general agent can bind his principal by all acts within the scope of his employment as against third parties, although the employer may have privately limited his authority." Thus an architect who has instructions to prepare plans and obtain tenders has an implied authority to engage a quantity-surveyor, or to prepare bills of quantities. But this authority is derived from custom, which must be proved, as there is no legal decision which appears to give an architect the right to exercise any particular authority. From these and other considerations it is extremely doubtful whether an architect can exercise any authority independent of any commission conferring upon him special powers.

From decisions of the Courts it is hard to say what is intended by the expression "within the implied authority of the architect." On these grounds the profession ought to obtain from their employers a discretionary power in acting within the scope of their employment. During the execution of a building it may happen that the architect may have brought to his notice some important point which may not have occurred to him when preparing the design. Unforeseen circumstances take place. It may be the necessity of sheet-piling the foundation, of putting in deeper footings or concrete, or some point of construction that could not be neglected without jeopardising the building or reducing its stability. The variation would entail an addition to the cost, which the owner or employers might not sanction. What is to be done? Is the architect to carry out his plans knowing at the time they would lead to a failure; or is he to take advantage of his authority as general agent? We cannot accept the dictum that the owner's wish is the only rule for the architect to follow. For the wish of the owner, if obeyed, may cost him a much larger amount if any accident took place. The architect's wiser discretion may in fact be the means of saving his client from serious loss or damage. In the majority of cases, employers would at once sanction any variation they thought essential, if brought to their notice; but there are individuals with whom a narrow and rigid observance of contract is thought preferable to increase of expenditure, and it is with regard to these we speak. In important undertakings, a certain percentage for contingencies or extras should be allowed to the architect that would enable him to authorise any variation he thought absolutely essential in the execution of his design. We have known contracts during the performance of which the employers are absent and cannot give the requisite order for alteration or extras; in public contracts, the proviso that an order for an extra must be signed by the chairman of committee cannot always be complied with, and a serious delay would arise if the architect or engineer had no discretion or power to act under any emergency.

Limit of cost is not equivalent to economy, but often detrimental to efficient workmanship. A sum spent on extras or variations wisely, may materially add to the efficiency of a building, and save the building owner considerable disappointment and subsequent alteration, as every builder knows that an alteration made after the work is completed costs 50 per cent. more, often double the sum that would have been sufficient while the building was in progress. Many penny-wise-and-pound-foolish employers appear to think that every "extra" incurred is an imposition, and goes into the contractor's pocket, instead of so much more value added to their work. We do not deny that "extras" are undesirable if they can be avoided; but all we say is, that they are often necessary evils, and may be of benefit to the employer.

One other kind of variation or addition to cost which seems to be within the scope of the architect's employment, is that relating to artistic design. It has been said that when limit of cost is incompatible with the carrying out of the design in its integrity, it should rule. In this case, also, the designer should be permitted some liberty: he ought to have power to alter, if need be, his design in matters of detail. But the question is, how far ought he to be allowed to make modifications, without consultation with his employers? The majority of owners would not trouble about any exercise of taste if it did not entail extra cost. We think on both structural and artistic questions the architect should reserve to himself certain discretionary powers, within reasonable limits. What these are we will not attempt to define: the extent and circumstances of each contract are the only criteria; but, whatever they are, they ought to be made a matter of express agreement. One presumptive reason for con-

ferring certain powers on the architect is that if he does not exercise them, and the building turns out to be a failure, he is regarded as the responsible individual. To say that the tender was a low one, and was insufficient, or that it was accepted against the architect's opinion, will not avail him much after the mischief is done. Everybody then is inclined to cast the blame upon him, no matter what his recommendations were; he is, in fact, liable morally, if not legally, for any shortcomings in the design or the contract.

ASYLUM PLANNING.—II.

OUR former remarks on this subject dealt with the principle of arrangement of the blocks, of which we distinguished the "linear or continuous" principle of building suitable for small asylums—the echélon plan or "broad-arrow" principle of corridor connection, the quadrangular or H-shaped plan, and one or two other varieties; we also discussed the question of the best form of block or ward, and we gave the opinion of one authority, and described the mode of classification adopted in some of the principal institutions for insane patients. We will in this article confine ourselves to a few details of planning. In America another general plan has been followed in which the blocks are completely detached and distributed at greater or less distance from the centre administration. These blocks assume the appearance of detached villas, which allow of very desirable separation or classification, and the results are said to be very satisfactory, though we have not sufficient information about them to warrant us in forming any conclusions. Whatever principle be adopted, the main objects ought to be to separate the pavilions as much as practicable, without necessitating long corridor connection; and to make them as cheerful as possible, the blocks should be planned so as not to be in each other's prospect, a consideration which the *échelon* plan insures. The idea of confinement should be avoided by every means; sunshine in the principal day-rooms and dormitories ought to be secured as one of the principal curative agencies in mental depression; the corridors connecting the blocks should be of one story, the wards should be arranged to reduce the service of administering as much as possible. The classification of patients leads of course to a proper distribution of the blocks of wards, and to a due proportion of day-rooms, dormitories, and single rooms. We have spoken of the general classes of patients whose accommodation has to be provided for, these being: (1) the sick and infirm, and recently-admitted patients; (2) acute or refractory patients; (3) the epileptics; (4) the chronic, and (5) working patients. Each of these classes is better in one position than another, and those who know the working of asylums are unanimous in placing the recently-admitted and the infirm under the immediate control of the medical officers. The wards for acute or epileptics require also constant control and supervision, and may be situated northwards of those for the infirm, while those of the chronic or working patients may be placed in a retired position in the rear or facing the airing yards, and may consist of day-rooms and dormitories, with but a small proportion of single rooms.

We now consider in more detail the planning of wards for the different classes. The habits and mental peculiarities of insane patients have to be studied before a perfect arrangement can be arrived at. Generally, every ward floor should be self-contained; the day-room and the dormitories for bed-ridden patients should have a southern or south-eastern aspect, as brightness and cheerfulness are particularly necessary. The classification of patients will, of course, dictate certain differences of plan. Thus, the sick and infirm block is better placed near the administrative centre, and under more easy control of the medical staff. The plan ought to allow of a separation of some of the patients by having two or more day-rooms, with a dormitory or two on the same floor. Mr. G. T. Hine, who is an authority on this subject, says: "The infirmary wards, which, including the reception ward, should generally provide accommodation for one-fourth the total number of patients, are best placed nearest the administrative centre and to the medical officers' rooms, and should not exceed two stories in height; or if three, the top floor should be devoted to dormitories for quiet patients. Each ward should be self-contained on a floor, and comprise one or more roomy dormitories, one with a southern aspect for bedridden patients, and with windows on at least two sides to allow of cross ventilation, as, indeed, should be the case in all dormitories. The superficial area and cubical contents of these rooms should very much exceed those occupied by healthier patients (the Lunacy Commissioners say one-third more); at least two comfortable day-rooms should be provided for convalescents, one especially for dining in, as these patients rarely go to the general hall for this purpose." Single rooms need not be so numerous in these wards, and one room to every six or seven patients is thought sufficient. A room, or rooms, for attendants must be provided in proportion to number of patients. The attendant's room may form one of the range of single rooms, and be convenient to the dormitory as well as dayroom at the angle. An annexe with closets, &c., a bath-room, lavatory, ward scullery, store-room, boot-room, are, of course, important. These may form a wing in rear of day-room, with corridor on one side, in the following order, a lavatory at the day-room end, next to it a bath-room for, say, two baths, then a store-room, then coals. The ward scullery may be at the end of a dayroom or at its junction with a rear wing. The scullery ought to be fitted up with a small range, a sink, and cupboards. The closet annexe ought to have an isolating passage with cross ventilation, and have about one closet to ten patients, and urinals on the male side, and a separate closet for attendants. A small room for slop sink and brushes, and places for linen and coals are required. The dormitories should be provided also with a closet and slop sink or two isolated by a neck, and with a coal closet at one end or in the rear. These offices and closets should be lined with an impermeable washable material like glazed bricks or tiles, the floors should be of tiles or concrete, and the closets have simple apparatus that will not get easily out of order. The ordinary "hopper" closet with trap in one piece of earthenware is recommended.

The wards for epileptics differ in some points. The ground floor is desirable for epileptics. Mr. Hine says that the day-rooms are better rectangular, without breaks or obstructions, which might conceal an epileptic in a fit. The wards may be less subdivided, the dormitories large and capable of accommodating five-sixths of the patients, the remaining one-sixth being given in single rooms opening out of the dormitory instead of dayrooms, though the latter should have one or two single rooms for difficult patients. In small asylums the epileptic cases may be arranged for on the ground floor and the acute cases above; but in large buildings the two classes are best separated in distinct blocks, as inmates suffering from acute attacks are not desirable neighbours to the quieter patients. The floors for acute cases must be soundproof; the day-rooms may be profitably subdivided by partitions with glass panels, so as to admit of better control by the attendant. For acute and refractory cases it is safe to allow one single room to every three patients. Unlike the single rooms epileptics, those for the acute cases sho open out of the day-rooms, and dormito on the same level are desirable for a few the most refractory. The question of proportion of single rooms in any clas ward is determinable by the actual requ ments. With ample dormitory accommo tion, single rooms for one-fifth of the t number is thought sufficient, but the portion will vary according to the clas patient. Thus while one room to e three patients is necessary for the acut refractory inmates, epileptics may have room for every five or six, the infirm one r to six or seven, and the quiet and working to every ten patients. Single rooms sh have windows protected by shutters, there should be no open fireplace, each r being warmed by hot air with inlet extraction flues. Infirmary wards may open fireplaces. The doors of epileptic should have a narrow opening to allo attendant hearing any patient who may a fit, but Mr. Hine suggests that inspe holes in doors are to be avoided, as suggest espionage. A better plan is thinks, to use a silent lock, which ca opened as easily as a shutter, without turbing the patient. In some wards u panels of plate glass are necessary.

Wards for the chronic cases, or the and working patients, may be retired, a have hinted, and placed at the north en corridors, or facing the airing yards. I day-rooms are the most important pa the ward plan, with ample dormitor say large enough for 30 beds—attach or on the upper floors. A room of wide is the maximum. An upper- ward should have about two exi staircases of incombustible material, so in case of fire they may not be cut off these may be made semi-detached towers. The commissioners also requ fireproof ceiling to all rooms occupie patients, if such ceiling is next the roof there can be no doubt that much safet comfort would be insured by fire and so proof floors generally in buildings of character. Skirtings of cement bevell top, with plastering of Parian cemen walls, are desirable. All windows s have upper hinged fanlights, the lowe being divided by mullions, with ce pivoted sashes.

The administrative block we have al considered in general terms. There few of the apartments that require s attention, such as the recreation hall kitchen, stores, laundry buildings, and shops, those latter being kept distinct male and female sides. The genera should be capable of seating about ha number of patients — there should stage at one end, with dressing-roo approaches from both sides. In a establishment the hall and chapel occupy one block, the hall being o ground floor and the chapel above. kitchen, sculleries, larders, and offices be ample for the requirements and ne dining or recreation hall, and in asylums separate dining-rooms are pr for some of the patients, while the and attendants have their mess-room the kitchen. The chapel, the rec hall, the kitchen, and also the sc are generally arranged on the centra dividing the male from the female The front corridors, running east and may have first in the centre a visiting or rooms, then the recreation or dinin and between this and the kitchen a serving-room and scullery side by each opening at one end into the ha the further end into the kitchen. rear of kitchen may be the scullery kitchen courts and stores on each Northwards of this may come the d court, with approach road and

ward's store; then the washhouse buildns, with drying stores and an open court front and back, and all these central ldings may be comprised between two in corridors running north and south, so t they may be readily accessible to erent portions of the asylum. The ndry buildings should be on the women's , but having access to men's wards. The tem of drying introduced by Mr. Hine at ttingham, by blowing warm air by a fan ough the horses, is expeditious and nomical, and has been used by him with ch success. The superintendent's house y, with advantage, be situated independly of the central block, though near it, ied by a corridor. Other ordinary buildis demand attention; these are the dissary, an isolation hospital for infectious s, arranged some distance from the n buildings, mortuaries for both sexes, , for each of which many recent plans y be consulted. The system of warming ventilation that appears to be most favour is that in which warmed air is itted or propelled by fan into trunks, ice into flues in the walls, with inlets the rooms under control. Extraction s in connection with up-cast shafts ought e provided to carry away the vitiated air n all the rooms, and this system is more iently promoted by mechanical agency n by relying entirely on natural means. this system fresh air, warm or cold, is itted at the top of each room, and the foul extracted at or near the floor level. The air est warmed by hot-water pipes or steam eries. It is a great advantage to be able egulate the temperature of each room, to do without open fireplaces, as, accordto those who have the supervision of ents, there is some quarrelling for places nd a fire. Yet the open fireplace ought e provided in some of the day-rooms and nitories, and, hygienically, cool, fresh air breathing is better than warm air.

ARCHITECTURE AN ART OR PROFESSION?

(From the *Times*, Nov. 24.)

is amazing what zest busy practical men find in the discussion of a purely academical tion. That must be the first reflection of y reader of a correspondence which has been g on in our columns. Here are eminent itects, to whom time is money, arguing with ation, and even acrimony, whether architre is an art or a profession. The Platonic gues are full of such wit-sharpening disons; and one can imagine the arguments by our correspondents thrown into a contion, with apt dramatic setting, in which, in nd, an unwary disputant, committed to some considered proposition, would be cornered. our correspondents are not philsophers, us about deep problems, but busy men; dwell not near the groves of Academe, but, aps, in St. John's-wood, the City, or West-

The Royal Institute of British Architects been taking steps to introduce a system of inations and diplomas. Certain architects others, and among them Mr. Norman Shaw, essed to the Institute a memorial protesting nst the innovation, which would set up cious distinctions, subject to the test of ination qualities which must elude all such e tests, and transform architecture from t, open to all with native aptitude for it, a close profession. Thereupon several ur correspondents, such as Mr. Woodand Mr. White, replied, "You mis- the object of the Institute. With architect as artist it has nothing to do. nnot pretend to say whether the young itect has genius; it can tell whether he can or cipher and possesses an elementary wledge of the conditions of healthy drainage. are providing only for the architect as a man siness." And so the discussion proceeds; Norman Shaw and his friends looking at one of the shield and saying architecture is an s much as sculpture or painting, the Pret of the Institute and Mr. Woodward intent upon the other side of the shield, and saying that it is as much a profession as engineering.

Suppose that we look at both sides of the shield. The history of architecture is full of examples of men who entered it, not by the chief gates, but by all sorts of side doors. The great Italian architects were painters, sculptors, workers in metal of various kinds, with no diplomas or connection with the "Institute" of their day. They passed from one art to another with amazing versatility and rapidity. By a species of divination they mastered technicalities which took men of ordinary wit years of apprenticeship. Michael Angelo, Leonardo da Vinci, and Brunelleschi "served their articles" to no one; they struck out a magnificent conception, and straightway stone, wood, and iron became their willing servants. Many modern architects have been, if not exactly heavenly born, trained in ways at first sight indifferently suited to fit them for their career. Wren's education was best calculated, with ordinary materials, to make of him a philosopher. He was no ordinary character; and so he became the constructor of St. Paul's and a multitude of churches in which he found scope for his scientific knowledge. Inigo Jones was trained very much as were the artists of his day; he did not cease to be an artist when he became an architect. There is also the other side of the shield. We build houses to live in them as well as look at them. They must be watertight, constructed with due reference to the qualities of the materials, the conditions of health, and the purse of the occupants. The humble details about buildings, which some architects loftily leave to the clerk of the works, are all-important to the man who is to dwell in the house. He will not be satisfied if porous stone, or unseasoned wood, or half-baked, crumbling bricks are used, to be told that his architect, an artist, has made the building a picturesque part of the landscape. When the latter asks his 5 per cent. or other charge on bad workmanship, his client looks to the side of the shield which Mr. Woodward and Mr. White have been studying, and which Mr. Seth-Smith describes in the letter which we publish to-day; by the paymaster, in such circumstances, the architect is viewed much as a tradesman who had sent home a defective carriage or watch. It would be unreasonable and unfortunate if the "specialist" referred to in Mr. Woodward's letter in another column had to be often called in, to do many of the very things for which most people pay architects.

With the controversy, in slightly different forms, we are familiar. There used to be a class of critics who were sure that all would be right with our buildings if only the workmen had a say in the planning of them, and that the unnatural divorce between the head which conceived and the hand which gave effect to the conception was responsible for all the evil; and they wanted the world to believe, on the scantiest of evidence, that such was the way in which the great Mediæval cathedrals were reared. What was needed was the "master workman," the "master mason," the foreman of works, who wrought with chisel and hammer as well as designed. Then we had other critics, a little less bold, who said that all would be well if more discretion as to details were left to the artificer, and the architect confined himself to dictating the main lines of the edifice. We have a recollection of the controversy taking yet another form, some saying that there should be free trade in architecture, as in selling coals, and others maintaining that it was the duty of the Institute to protect the public from dangerous impostors, who masqueraded in the garb of trustworthy professional men. The outcome of all these controversies is tolerably simple. When, on the top of two upright stones, is laid another, when unhewn boulders are thrown together to make a monumental pile, there is no touch of art; but the moment the artificer begins to incline or curve the jambs of the lintel, the moment that he seeks to give a columnar shape to the rude mass, the region of art is entered. Henceforth, side by side the artificer and the artist ought to walk, if architecture is not to become senseless dilettantism, or to make the earth uglier than it was. Whether there should be examinations and diplomas is not now the question. Our point is, that the future of architecture will be all the better the more it is looked at from both points of view. What have been its dark ages? Those in which people had built in soulless fashion merely in order to be coarsely comfortable —in which the house and home have been made only to eat, sleep, and digest in; and those, also, in which there has been fantastic striving after far-fetched effects, and disdain of all that is simple and direct. What have been the bright days of architecture? Those in which there has been no thought of severing the artist and the artificer; in which the builder could not tell very well whether he was thinking most of honest or beautiful work; in which there has been no talk about "art architects," "scientific constructors," and "master workmen;" those in which men were not too curious to discuss whether architecture was an art or a profession, but unconsciously and without solicitude strove to build for soul and body. Why attempt to divide what ought to be indivisible? We want the architect to be neither above his business nor below it, but to be artist and man of business.

The following is Mr. Seth-Smith's judicious letter to which the *Times* refers in the preceding article:—

"It is clear that either the Royal Institute of British Architects, with its now well-established system of compulsory examinations for its own membership, is altogether on the wrong road, or that Mr. Norman Shaw and his friends, who memorialised the Institute against this system, are mistaken in their view that architecture is an art 'on precisely the same footing as painting and sculpture.'

"Those with whom I have the honour of being associated in the promotion of the movement for the legal examination of all persons calling themselves architects agree with the Institute, but desire to see the examinations made compulsory in future upon the entire profession, and conducted by a paid staff of examiners; and we further desire that the R.I.B.A., as the senior and leading professional body, should draft and introduce such a measure to Parliament.

"Now, Sir, for our reasons for agreeing with the examination policy of the Institute. Mr. Norman Shaw is correct in stating that at the present time there are three branches of professional work performed by men calling themselves architects, and we perfectly agree with him in holding that the artistic qualification is essential to a proper claim to that title, but hold that the constructional side is inseparable from the artistic, and we are convinced that a well-balanced examination in both the science and art of architecture will have the very, and very desirable, effect aimed at by Mr. Shaw—namely, of preventing men who are exclusively utilitarian constructors, or men of business, from using the title of architect.

"The tests imposed by the Royal Academy prove that it is possible and expedient to examine men in matters of taste, and I for one would not advocate any system of examinations in architecture which excluded the test of the existence of a sufficient degree of designing power (and skill in representing ideas), to insure the public against such costly disappointments as are now only too terribly common.

"As regards artistic specialism, we believe that it is impracticable to separate these three branches of practice except in the case of a very limited number of men in the metropolis and large provincial centres, just as in medical science the vast majority of men are compelled to be general practitioners; in all such matters we have to consider the question, not in the light of its bearing upon a small class of men, but for the general good; and when a man has qualified by passing the general examination, he can become a specialist either in art or in science.

"It is to be feared that the architect is, generally speaking, called in, not so much to guide in matters of taste as to secure good planning, construction, and sanitation, and it is in the exercise of his skill in these foundations of good architecture that he finds his opportunity for designing beautiful things, whereas the tendency of Mr. Norman Shaw's arguments is to reduce the architect to a mere decorator employed by the engineer or builder.

"It is a lamentable fact also that art has contributed next to nothing to the vast advantages which engineering construction has conferred upon the public, and the reputation of science has suffered proportionately among men of Mr. Norman Shaw's type; but, supposing that engineers had studied architectural art, and architects had imbibed something more of the bold, inventive spirit of the engineer, our Empire would not be disfigured, as it is everywhere to-day, with grossly utilitarian erections on the one hand, and with ornamental plagiarisms, caricatures, and deceptions on the other; we believe that such a union would have done more for architectural art than anything else could have done. The professor of architecture at the Royal Academy is perfectly right in saying that for the last 300 years architects have been groping in the dark, and that it is only in combination with constructional science that we can expect living and lasting progress in our art. "W. H. SETH SMITH,

"President of the Society of Architects."

The following rejoinder from Mr. MacVicar Anderson, P.R.I.B.A., appeared in Wednesday's *Times*:—

"In your leading article to-day you refer to those who say that 'Architecture is an art, as much as sculpture or painting,' and you describe me as being 'upon the other side of the shield,' representing the merely professional, as contrasted with the artistic, view of the question. Will you allow me to trouble you with one sentence from the address which I delivered at the Institute on the 2nd inst., in which my views are condensed:—'Architecture is not merely an art, it is not merely a science, it is not merely a profession; it is the combination in one of the artist, the constructor, and the man of business; and any who claim that it is one only, to the detriment of the others, detract from the nobility as well as from the unique character of their calling; they vainly strive to disintegrate things which are are inseparable, and which must go hand in hand.' You, Sir, conclude your article in words nearly identical:—'Why attempt to divide what ought to be indivisible? We want the architect to be neither above his busines

nor below it, but to be artist and man of business.' It is gratifying to me to find that, although—from inadvertence—you erroneously dub me an apostle of the purely utilitarian, your views are really identical with my own; and I venture to think that they will be adopted by all who impartially regard the question in the light of common sense."

Among others who have taken part in the correspondence is Mr. William White, F.S.A., who points out that Mr. Norman Shaw unfairly depreciates the endeavours of the Institute to enable its future members to exercise their art successfully, and without bringing it into discredit by way of culture, adding, "when a man has obtained his diploma the public will soon discover whether he has, or not, enough of the artist in him to carry out their commissions." Mr. T. G. Jackson reiterates his contention that architectural construction must not only be scientific, but artistic—which nobody had denied. "Art Union" suggests that the testing of architects' qualifications in construction and drawing at the Institute should be only preliminary to a higher test at the Royal Academy, where architecture is recognised as an art.

THE SOCIETY OF ARCHITECTS.

THE announcement that Mr. G. A. T. Middleton, the Secretary of the Society of Architects, would deliver a lecture illustrated by lantern views from photographs, on "The Society's Excursion into Belgium" last August, brought together a very large gathering of members and their friends, including many ladies. The President, Mr. W. H. Seth-Smith, F.S.I., occupied the chair. Before the paper was reached four nominations for membership were read, and the following eighteen new members were elected by ballot:—

Robert Annan, 19, Gayton-road, Hampstead, N.W.; James Harper Bakes, Calverley Chambers, Victoria-square, Leeds; Robert Railston Brown, Town Surveyor, Bridlington; John William Boyd, Clayton Park-square, Newcastle-on-Tyne; Charles Dempster Collins, Engineers' Dept., L.B. and S.C.Ry., London Bridge, S.E.; William Cooper, F.S.Sc., High Beach, St. Matthew's Drive, St. Leonard's-on-Sea; Maurice Alphonsus Honnessy, 62, George-street, Limerick; Joseph Henry Hirst, 77, Derringham-street, Hull; John Jackson, Barry-street, Bradford; Francis Seymour Leslie, Major R.E., War Office, Whitehall, S.W.; Arthur William Osborn, 27, Ronald's-road, Highbury, N.; Richard Lano Pearce, A.A.Oxon, Donaldson Silver Medallist, 100c, Queen Victoria-street, E.C., and Surbiton Hill, Surrey; John Todd Rea, Churchfield, Holywood, Belfast; Frederick William Roberts, Northbrook Lodge, Taunton; William John Rowell, Newton Abbott, Devon; John William Smith, 37, Ruthven-street, Cardiff; Frederick William Stevens, C.I.E., F.R.I.B.A., M.Inst.C.E., Rampart-row, Bombay; Rao Sahib Sitaram Khanderao Waidya, Bombay.

Mr. MIDDLETON then proceeded with his address, which was delivered *vivâ voce*, and with but casual assistance from notes. The illustrative photographs were taken during the tour by Mr. William Allport, F.S.I., and by Professor Henry Adams. The excursion was described and illustrated in our pages during its progress, in our issues of August 21st and 28th last. Mr. Middleton remarked:—When first it was proposed that the Annual Excursion for 1891 should take place upon foreign soil, some doubt was expressed both as to the practicability of the scheme and as to the likelihood of making such an excursion a success, even were it practicable; but as the arrangements ripened it was seen that the difficulties in the way rapidly disappeared, until at last all doubt was dispelled by our past-president, Mr. H. R. Gough, receiving a letter from the British Embassy at Brussels to say that, were we to visit Belgium, King Leopold II. would grant the members of the excursion party an audience, should he be in the country at the time of the visit. Shortly afterwards His Majesty named Saturday, August 15th, for the audience at his palace at Ostend; and therefore the excursion was arranged to commence on that day, and it was determined to remain for a fortnight in Belgium, making arrangements for the return at the end of the first week of such as could not remain longer. The journey down to Dover and the passage thence to Ostend were accomplished in the greatest comfort: but the boat was somewhat late, and it was not easy, with the imperfect knowledge of each other which the members of the party then had, to clear the custom house and to get all the luggage, and all the people too, into the cabs without the station—for the party numbered 41. Nor was it any more easy for so many to squeeze into the small house which, it being the annual fête-day, was the only place which Messrs. Gaze and Son's Lieutenant, Mr. Schembrie, had been able to provide for the necessary change of garments before the interview with Royalty. A scene of confusion followed, but it was soon over, and at the earliest possible moment the President led his following to the Palace. There the King received them in his audience chamber, shaking hands with the President, and saying a few words of welcome in English, after which the President read an address, which had been prepared and illuminated by one of the members. His Majesty replied in English at a very considerable length, pointing out what buildings should be visited during the tour, and drawing particular attention to the valuable building stones of Belgium, pointing out their suitability for use in English work. He spoke in eulogistic terms of the modern work of England, saying that our villa and cottage architecture was greatly admired by the Belgians, who were striving to follow in our footsteps. A the conclusion of his reply, his Majesty asked that each member of the party might be separately introduced to him, and to each he spoke a few words, evincing a thorough knowledge of the characteristics of the many districts of England from which they came. The audience over, no time was lost in finding the hotel, where dinner, much needed by the majority, who failed to obtain provisions on the boat, was waiting. It had to be hurried through, but time was found for a few words from the President, proposing the toast of his Majesty the King of the Belgians, which was duly honoured; and then the train for Bruges had to be sought. Arriving there, the Grand Hotel du Commerce was found not to be large enough to accommodate the party, and several members had to sleep in lodgings—but this was found to be the usual thing, almost everybody taking turn, before the tour was over, at sleeping away from the hotel. That first night, however, everyone was in good spirits. A band was playing in the "Place," and struck up "God Save the Queen," to the surprise of some fifteen of the members; but they extemporaneously formed themselves into a concert party, and sang it to the music, afterwards coming round to the courtyard of the hotel and singing there. The next day, being Sunday, was spent quietly, and everyone enjoyed the rest, wandering about the quaint old city, looking its best in the bright sunlight, or strolling into the park to hear the music. To many it was a first glimpse of Continental life, and they could have had no better introduction to it than this quiet day in picturesque and sleepy Bruges. Upon Monday morning the real business of the excursion commenced, M. Sancerie, the city architect, taking charge of the party, and acting as conductor. The first place visited was the Hotel de Ville, like all old buildings in the town, well known to tourists, but now with its elaborate front concealed from view by scaffolding—for it was undergoing restoration at the hands of M. Sancerie, whose excessively fine, small-scale working drawings were greatly admired, though most architects would prefer to use a larger scale for clearness' sake. The neighbouring Maison Grieffe was next inspected, with its gaudily-coloured Spanish front, by no means bad in its quaint design, and with its really good Renaissance chimneypiece, and the doors which formerly belonged to the Hotel de Ville. More good Renaissance woodwork was found in the Palais de Justice close by—a very bold huge chimneypiece, and some delicate carving in a large cabinet, having curious ventilation panels formed to represent interlacing reeds. After this, by way of change, the wonderful collection of lace in the Musée Grauthaus was inspected by about half of the party, the others gathering in the Place, and sketching striking details of M. Sancerie's new post-office and municipal buildings, both works of the highest order, and instinct with the local spirit of the town. When all reassembled, it was to mount to the summit of the belfry, to examine the machinery by which the chimes are played, and to take note of some fine but simple double iron gates which had once formed the doors of the muniment safes. Some time was spent there; but the morning's work was by no means finished yet: the Chapelle de Saint Sang, with its beautiful and perfectly preserved Flamboyant entran rich with carved foliage, and its unrestful coloured interior, demanding a visit; and ev then there was the great treat of the day follow—the inspection, after a hurried glar *en route* at the Place Van Eyck and the old bri traceried houses there, of the new Norm School for Girls, built quite recently under Sancerie, charming in its great variety of br tracery, softened and improved by the emplo ment of a wide mortar joint to the narrow br courses, and the non-insistence upon a perf arris, so long as the lines and curves are crisp a true. The work was of such high order, tha was felt that a great honour indeed was bestow upon the Society, when, after lunch, Monsi Sancerie expressed his willingness to accept ho rary membership, offered to him by the preside After lunch there was not much more time at disposal of the party, but a somewhat hurr visit was paid to the Cathedral, under guidance of Père Béthune, the first of m delightful ecclesiastics who were met with dur the excursion, and to the baptistery of N Dame, instinct with the best Gothic feeling, rather spoilt by its modern parapet, while m also contrived to see Memling's pictures in hospital of St. John before it was necessary take the train for Ghent. There the next was nearly as busily occupied as Monday been, the conductor throughout the day b Monsieur Van Assche, the architect for restoration of the Cathedral, over which bu ing he first conducted his visitors. In m ways imposing, and particularly remarkable the able way in which the modern work had made to harmonise with the old, yet cathedrals were yet to be seen in other to and even finer restorations by the same ar tect. Much time was spent examining de and pictures, and a good deal of attention given to two brass candlesticks of Renaiss form, said to have once belonged to Old Paul's, and to have been sold to Ghent Henry VIII.; and though this was scar credited at first, owing to their Renaiss feeling, yet the presence of the Tudor ros several places, and of the *fleur-de-lys* upon arms of England, established the date tolerable exactitude. Leaving the cathe M. Van Assche led the party to see some no schools in course of erection—much inferi those at Bruges—and into the large hall of Palace of Gerard le Diable upon the river si spacious, noble chamber, though somewhat and dimly lighted, with its double row of mas circular columns, and its vaulted roof. building is now undergoing restoration. the usual and much-respected interval lunch (for which every one was each day re the breakfasts being of a distinctly light Continental character), all steps were tu towards the ruined Abbaye de St. Bavon, i outskirts of the town—a veritable stor Romanesque and Early Gothic detail, picturesque in its present ruined state. cially some well-preserved frescoes and q encaustic tiles were noticed, as was also a curious small cross-shaped window, cle constructed of rude voussoirs, and some c foliage representing the water-lily leaf. leaving the abbey, the party split up into through the taking by some of a wrong turning did not collect again until it was time to leav town, but most buildings of interest were se everyone, though those who kept with M. Assche naturally came best off. He first le followers to the Hotel de Ville, a building o markedly different styles—Late Flamboyan Early Renaissance—the former rich i elaborate canopies and many small but st mouldings, and the latter of a bold and m type, with rusticated base, an order over, passing two stories, with banded columns, heavy crowning cornice. Little time cou spent there, however, for it was getting lat hurried visit was next paid to the Oudenbu double fortress, in two stories, each a p building of itself, now in complete ruin, bu impressive in its broad simplicity—where of Gaunt was born; and then M. Van A led the way through the ancient Butchers' remarkable for a magnificent open-timbere of the 12th century, in oak, in splendid pre tion, and rarely seen by travellers—havi all such roofs seem to have, its principal r cut where the collars are framed in. The was but a short distance to the well-known per's House upon the Quai aux Herbes—one

ıst examples extant of the Late Gothic work
'landers, and looking even more rich from
ffect of its well-coloured and much weather-
stone front, set off by equally noble but
simple buildings by its side—one Roman-
e, the other Renaissance. Rain was begin-
to fall, so that the early hour at which it
necessary to leave for Antwerp was not
ıtted so much as it otherwise would have
—that city being reached while there was
daylight. On Wednesday morning the
of assembly was the Hotel de Ville, a 16th-
ıry Renaissance structure, of no great
nal pretensions, but containing much good
rn carving in the principal rooms, which
shown by M. de Winter, the head of the
l Bureau of the Municipality. To describe
thing in detail would be wearisome, and
result little more than a catalogue; but
g much which was fine, possibly that which
nost admired was the carving in the mayor's
te room, and the original gallery to the
il chamber, though, strangely enough, no
s of access to it has ever been provided. On
ıg the Hotel de Ville there was time before
for an inspection of the lofty front of the
erroneously known as the Palace of
es V., facing the Grande Place, and for a
half-hour or more to be spent in the
angle of the Musée Plantin, quiet and
-like, very similar to many an Elizabethan
yard here in England, and most restful to
already wearying with the intricacy of the
ish Gothic detail, of which so much had
seen so hurriedly. The cathedral was
d in the afternoon, M. Baekelmans, the
tect for its restoration and other recent
there, being the conductor; but unfortu-
y that upon which he was then engaged, the
ing up of the west window with a huge
gallery, constructed of wrought iron where
stone supports are available, is by no means
criticism, though other completed work is
to his great reputation. Of the newer
perhaps the carved reredos to one of the
n chapels, by De Bock, called most largely
dmiration, though the figures upon the
stalls also received their share. The in-
on of the cathedral ended with the ascent
flag-covered roof of the aisles, which it has
d difficult to keep watertight, and a walk
the interior of the nave roof, most
sting from the opportunity which it
ed of closely inspecting its construc-
Rain was falling fast when the cathe-
as left, and then many members went to
arious museums and picture galleries,
others wandered into the well-known
e, with its traceried columns and light iron
or into the Church of St. Jaques—large
imple, with a rich Renaissance chancel-
. On Thursday morning the train was
to Malines, a quaint delightful little place,
one crowning feature ruling over all, and
g from all points of view the object towards
the perspective tends—the great Cathedral
When it was first sighted, on turning
ıe Place, the party which had been hurry-
wn the hill from the station, paused, and
proceeded slowly, until they reached its
and then they entered the cathedral door
antly, to be met within it by a priest of
stature and most pleasant courteous ways
Canon Von Caster, acting as representative
Archbishop of Malines. A most delight-
ıide he made over the grand old building,
he evidently knew and loved as well as
ıonk of olden days, of whom he was a
y successor, himself the architect of the
gallery under the tower at the west end,
such restoration as had been accomplished
years—all the work of a skilful, cultured
He pointed out the difference between the
d carving and the great amount of plaster
on in the capitals, the best substitute which
en found for the original work destroyed
time of the French Revolution—though
probably, better could be done. He also
ttention to a series of beautiful small
el carvings in the north transept, and
led the way up the huge tower, after ex-
g that it rested practically upon its two
alls only, the eastern being open to the
, and the western pierced by the great
oorway, these walls being but 11ft. thick,
rried only 15ft. down to solid clay founda-
ithout further thickening. From the top
iew of the town and the adjacent country
otained—and on descending, the Canon conducted the party to his private house, showing them his grandfather's original design for the completion of the tower by erecting on it a great spire almost as high again—a noble conception, which he still hopes money may be raised some day to realise. At lunch the Canon himself expressed a desire to become an honorary member of the Society—the first lay honorary member who has been admitted—and in making this request he only forestalled by a few minutes the offer which the President was about to make. After lunch a tour of the town was made, the places of minor interest to the cathedral receiving only slight attention, though several of them are worthy of protracted study. First came the small Palais de Buzsleyden, with the picturesque tourelle, and the Mont de Piété adjoining, vine covered and quiet in its Renaissance simplicity; and then the ill-restored front of the Palace of Margaret of Austria, though within the gate occurs a curious column, half-Gothic and half-Renaissance, and another quiet quadrangle. Then the Hal aux Draps, quaint in outline, broad in treatment, facing the cathedral, received but a passing glance; but a longer pause was made in the turreted museum, for there the Canon had a book to give to each member of the party descriptive of the various periodical fêtes held in connection with the cathedral. Thence it was but a few steps, and on the way back to the station, too, to the old houses on the river side, such as the Salm Inn, all studies in stone or timber, and the simple 13th-century bridge, and thence to see Rubens' great picture of the "Draught of Fishes" in the Church of Notre Dame, and yet again to pause for a moment beneath the old town gate, before leave was taken of the Canon of Malines. That night was spent in Brussels; but Friday had been laid out for an excursion to Louvain, which was reached in heavy rain, the spectacle of the military funeral of an ex-prime-minister, not contemplated when the programme was drawn up, being somewhat marred in consequence. M. Goyers, the sculptor, was the conductor here, and led the way to the cathedral, where a good deal of time was spent inspecting the interior, which contains a fine Late Gothic screen, and many pretty little bits of detail, especially in the delicate ironwork forming the locks and ventilation panels of some small cupboard doors. On leaving the cathedral, a tramp through the rain brought the party to M. Goyers' studio, a long and airy room, in which were wood carvings in all stages of execution, the figures being especially remarkable for ease of pose and perfection of execution—the best figure sculpture in wood to be seen in Europe. Unfortunately, the same could not be said for everything, some of the work being evidently taken at too low a price to allow of deep cutting, or of more than elementary outlining. In the afternoon the First Echevin, M. Fonson, received the visitors at the Hotel de Ville—a most elaborate 16th-century Gothic structure facing the cathedral, but wanting more space in front of it to display its full beauty. Now it was undergoing part restoration at the hand of M. Goyers, though it had been recased but 40 years ago by his father—an instance of the use of an ill-chosen stone. Within it seemed a marvellous pity that a rich mantelpiece, in keeping with the building, only just finished should be painted; but the first coat of colour was already beginning to be applied. It is to be hoped that the fine modern oak ceiling to the large room, and the timber pendant ceiling to the small room, opening beyond it, will be spared—they are too good to be "decorated." The rain ceasing, it was found possible to visit, in the hurried fashion usual towards the afternoon, the old Cloth Hall —a curious structure, with a grand Romanesque pillared and vaulted room occupying the ground floor, but externally with a 14th-century blind arcade at the first floor level of unique design—not arched, but straight, triangular-headed, with shallow cuspings. This was up a street which entered the Place beside the Hotel de Ville, and still further above it was found a 14th-century brick front to a house, with rich Geometric tracery, in brick, carried over the entire surface —a front which drew sketchbooks and pencils from the cases in which they had hitherto been too much confined, from want of time to sketch. Returning to Brussels, an informal meeting of the members of The Society present was held after dinner in the hotel, the visitors and the ladies being excluded, and the opinion then expressed by provincial members, whose advice is but rarely available owing to their inability to attend the sessional meetings, and their consequent modesty as to offering suggestions, will be found by close observers to bear fruit in the details of management of the Society during the coming session. Among these changes will markedly be noticed the enlargement of the Proceedings by the introduction of reports of the discussions which take place at the meetings upon the papers read. On Saturday morning, the Bourgmestre of Brussels, M. Buls, was to have received the members at the Hotel de Ville; but, in his unavoidable absence, his place was taken by his two Echevins, and by M. Wauters, the archiviste, and M. Jamaer, the architect of the city. Externally, the building seemed poor after the Hotel de Ville at Louvain, but the internal decorations, and especially the carved woodwork, the new Assembly Hall, and the method of electric lighting, both in clustered lights and by rows of lamps along a ledge above the cornice, hidden themselves from view, were well worth studying. Thence it was a good walk to the King's Palace, which His Majesty had graciously thrown open to the inspection of the members, giving orders that everything was to be shown to them, and that they were to do just as they pleased. It was a change, and a pleasant one, to wander up the grand staircase and though the spacious chambers, designed simply and in good proportion, well displayed and restful, for the elaborate decoration scheme has only been carried out in a few rooms, and notably with good effect in the great dining-room. Yet it was a disappointment to find that the walls were but of brickwork, plastered over—that, in fact, soundness and permanence of construction had been sacrificed to obtain great effects rapidly and at comparatively small initial cost. Amongst the most beautiful things seen were some inlaid tables, and a wonderful collection of Dresden china, such as scarcely exists elsewhere. In the afternoon another mark of his Majesty's graciousness was shown, the buildings at Laecken being thrown open to view. First there were the foundations of a new private church which the King is building—an octagonal erection in iron and glass, which is to have an ambulatory completely round it, forming a kind of aisle, screened off with a glass partition from the church itself, and containing flowers and creeping plants, as do now the many glass-covered corridors which will eventually connect the new church with the new palace. In the line of those conservatory passages is a great winter garden, where the constructional iron-work is treated in a simple and natural manner, decorated as iron ought to be by means suitable to the material; but the reconstruction, now proceeding rapidly, of the Palace itself, destroyed by fire nearly three years ago, is evidently upon the lines of the Palace at Brussels—a rough brick carcase, plastered over. Most of the afternoon, therefore, was devoted to the conservatories and the park, amidst beautiful plants and flowers, and in the open-air—it was an afternoon of pleasure and relaxation, spent mainly under the leadership of Mr. Knight, the King's Scotch "Director of the parks and gardens." Thus it came about that much of interest in Brussels was passed by with only unofficial notice of a few, neither the Cathedral of St. Gudule, or the new Palais de Justice receiving that share of attention which they would justly claim. Saturday evening, after dinner, was devoted to the delivery of a few speeches of a post-prandial kind, for the party was to divide on Monday morning, Sunday, of course, being given up to rest and recuperation: and on Monday, accordingly, only twenty-three continued their journey on to Mons, the remainder, unable to remain longer from England, returning direct to London. After all the good things which had been witnessed during the previous week, it is not too much to say that Mons was a disappointment. The Church of St. Wandru has a fine and dignified interior, being that rare thing, a church of one period only—the Flamboyant—and it possesses some windows of remarkable grace, and the base of its tower is almost equal to that of Malines, which it resembles; but that is all. The vaulting is of brick, and in many places crudely executed. There was a small piece of 12th-century fresco painting of some interest in the ruined Chateau of the Counts of Hainault, but after that had been seen, the rest of the day was but spent in weary pilgrimage, even the Hotel de Ville presenting little of real interest, and the hospital and school, to which M. Hubert, the conductor,

led the party, being poor both in arrangement and design. It was really a relief to take the train again and travel on to Tournai, reaching that town as it was growing dark, but not too late to be impressed with the frowning majesty of its great cathedral towers—five mighty masses rising in a group, in all the bold severity of the Romanesque. But if the cathedral had been impressive in the gloaming, it was much more so next morning when it could be seen in all its detail, the interior particularly being solemn beyond description, with its massive round-arched nave, the low columns bringing the elaborate and still perfect detail of the caps well within sight, leading up to the grand Transitional apsidal-ended transepts, and the lofty 13th-century choir beyond, and beyond that again the retro-choir of Late French character, all the different dates most plainly marked, and the various parts growing in natural and harmonious sequence, one from out the other. Yet it was not this, but the masterly arrangement of the lighting, which gave the great solemnity to the cathedral, and the broad masses of light and shadow, yet with a sufficiency of minor means of lighting to give also that air of mystery which goes further, possibly, to charm in Romanesque and Gothic edifices than any other cause alone. Altogether it was far the finest church which was seen during the excursion, its simplicity and breadth of treatment appealing strongly to the architect and artist. The conductor, too, Canon Hugnet, was all that could be wished, pointing out many a beautiful little piece of detail which otherwise would have been missed, and particularly drawing attention to the reliquaries and ancient vestments which were on view in the sacristy—a most rare privilege. Among these were a small, wood-covered diptich, inlaid with ivory, of the 10th or 11th century; a wood box with wrought tin ornaments of the 12th century, found in a shrine of that date only two years ago; and a Byzantine reliquary brought from the pillage of Constantinople, and dating back to the 9th or 10th century, its great feature being a piece of transparent enamel, of which no one present had ever seen the equal. There were also many chasubles which had been worn by historic personages, all of rich material, well designed, and the room walls were covered with fine ancient tapestry, while in the choir there were two shrines of gilded silver, made by Nicholas Verdun about 1206, of wonderful design. On leaving the Cathedral, Canon Hugnet led the way into the bishop's private chapel, adjoining the triforium, with which there is connection, a particularly well-designed chamber with 13th-century vaulting. After lunch the members scattered, many returning to the Cathedral to sketch, and others wandering about the town, inspecting the belfry, almost Byzantine in its feeling as is much of the Later Belgian work, or the beautiful 13th-century Church of St. James, with its noble interior, or the more simple one of the same date dedicated to the Madeleine, and the old water-gate close beside it, with its portcullis groove, and its corbel table, and its machicolations still remaining; but, worthy of attention as these were, it was the noble Cathedral which everyone regretted leaving when the time of departure came. That night was spent at Courtrai, and Wednesday was devoted to an excursion to Audenarde, a little town possessing the finest Hôtel de Ville in Belgium, simple in general outline, as are all these buildings, possessing but a central lantern tower rising above the steep and many-dormered roof; but its detail is more elaborate and well conceived. The photograph which forms the frontispiece to the current *Proceedings* will give some slight idea of its beauty; but it cannot reproduce the rich tints of the masonry, or the exquisite play of colour and motion as a troop of lancers passed it in bright sunshine. It was built between 1526 and 1536, in the last days of the Flemish Gothic period, by Henry Van Pee, of Brussels, but was restored fifty years ago with a friable French stone, and will soon have to be restored again. In the council-chamber the members were received by M. Paul Raepsart, the Bourgmestre, whose new house was visited later in the day; and the room was a remarkable one, containing a most wonderful specimen of Early Renaissance wood-carving in its central door, carved, but one year after the completion of the Gothic building, by Paul Van der Schelden, a native of the town, costing but £42, while a reproduction of it in the Bourgmestre's house, with cast bronze instead of timber panels, has cost £140. It may be mentioned that reproductions of the panels are to be obtained, price 50 francs each, there being twenty of them altogether. The afternoon was mainly devoted to an inspection of the Church of Notre Dame de Pamela, recently restored by M. Van Asshe of Ghent, a very beautiful Transitional building, with an external arcade to the clerestory windows and an octagonal tower, an exceptional feature being a long two-light lancet window to the south transept, carried through the triforium. It cost some £20,000 to restore—an immense sum when it is remembered how cheap both labour and materials are in Belgium; but any surprise was removed when the church of St. Walburga was seen, now in the state in which that of Notre Dame de Pamela had been before its restoration. All the old work has either been cut away or incased in solid brickwork to allow of the interior being transformed into an ugly, ill-conceived, plaster-covered Renaissance design—a specimen of the lowest depths of Vandalism. Returning to Courtrai, Thursday was spent there, the morning opening with a reception at the Hotel de Ville by the Bourgmestre. The exterior of this building is quite simple compared with others of its class, but inside are two chimney pieces which it is worth while going very many miles to see, of crisp Late Gothic detail, exhibiting strong Spanish influence, that in the Council Chamber being particularly rich, and the general effect of the room has been much enhanced by the addition during recent years of fresco paintings of rare excellence upon the walls, representing historical events connected with the town—one in a dark corner being specially remarkable for its treatment, by means of which the detail is rendered as clear as that of the paintings which catch the full light. Most of the day, however, was spent by the members in wandering about the town, sketching the tower of the ancient Cloth Hall, now inclosed by modern houses, or the quaint buildings in the Béguinage of St. Elizabeth, or the round-towered Water-gate—drinking in at the same time the rich colour effects, in the clear atmosphere, of many a pretty piece of street arrangement. In the afternoon Père Gazelle conducted most of the party over the Church of Notre Dame; but it was but another example of the casing of good Early work with bad plaster ornamentation, and the time spent there could probably have been better employed. On Friday morning, Baron Surmont de Vols Cerghe, the Bourgmestre of Ypres, conducted the members over the great Cloth Hall—a building which impresses by its enormous size, as well as by its simplicity and nobility of design, erected between 1285 and 1303. Its principal feature is the great room which occupies the whole of the first floor, in three arms, one of which alone measures 460ft. in length, while it has a uniform breadth of 38ft., spanned by a massive open-timbered roof of the character described already. To pass from great to minor features, the front of an old timber house, now erected in this room, and the mighty frescoes now being painted on its walls, some excellent modern productions, and others bad attempts, by someone who was scarcely competent, to reproduce the character of ancient Gothic work, claimed much attention; and some was also given to the modern chimney piece in the council chamber of the adjoining Hotel de Ville, which would have received more, but that better carving had been seen at Courtrai and Audenarde. The Baron then led the way to the museum for a short stay there, where some fine bits of carved detail were found, and then left the party. In the afternoon many members gave themselves up to sketching the traceried brick fronts, such as that to the Hotel du Gand, which abound in the town, but the majority proceeded to the church of St. Martin, just behind Cloth Hall—a church in quiet harmony, but not greatly remarkable, save for some unpretentious and well designed choir stalls of the 17th or 18th century, carved in low relief. The excursion was drawing to a close. There was but a railway journey to Ostend, a night spent there, and then the crossing and the separation, in most cases it is hoped to meet again next year, of a party which had grown to be like one large family. The tour had been a success in every way, largely due to exceptional facilities given everywhere, and particularly by His Majesty the King of the Belgians; while it was felt that an important step in advance had been taken in thus securing the meeting of the architects of England and those of another country, a st which cannot but be to the interest of archite and architecture generally, securing to ea country the advantage of the research and sk of the architects of the other. Of little l value, too, is the close intercourse engende during such a tour between the architects different parts of England, tending to a wideni of sympathies and the unification of practi while to all who took part in it the excurs must have left behind a feeling of pleasure o —a pleasant summer holiday, spent in pleas company, and with a definite object in view s as gives the greatest zest to pleasure, apt to p if sought for its own sake alone.

At the close Mr. Wyke Bayliss, P.R.B. proposed a vote of thanks to Mr. Middleton his very interesting and vivid description of tour, which had been relieved by many bri flashes of wisdom, wit, and humour. They all thoroughly appreciated the rich treat they enjoyed.

Mr. William Woodward, F.R.I.B. seconded the motion, remarking that it was very good fortune to form one of the forty- who took part in that most enjoyable and instr tive excursion which proved a thorough succ and he hoped to have the privilege of join other similar excursions to be arranged by Society. Criticisms had been passed that ev ing, and also in the pages of the Building N last August, on the lightness and cheapness much of the work carved in the studio of Goyers at Louvain; but M. Goyers had inform him that this was solely a question of pr He was obliged to tack on his crockets and o details, instead of working them out of the so as he would prefer, as clients would not pay additional cost of substantial work.

The President, in putting the vote of than added a few appreciative remarks on Mr. Mid ton's labours during the excursion, and obser that M. Sancerie, of Bruges, was, without do one of the finest contemporary architects Europe, all his work being distinguished evidences of refinement and erudition. chief peculiarity of modern Belgian work was thought, the great use of the three-centred w which was coming into fashion in modern Eng Renaissance work, as in the new Assize Court Birmingham.

The vote of thanks was carried by acclamat and suitably acknowledged by Mr. Middleto

THE SURVEYORS' INSTITUTION.

At the ordinary general meeting of this soci held last Monday evening at 12, G George-street (Mr. C. J. Shoppee in the ch a paper was read by Mr. J. R. Adams on " Title to Land: its Registration and Transfer

The author prefaced his remarks by ackn ledging that the idea of writing the paper been suggested to him by reading the paper w Mr. C. Fortescue-Brickdale had compiled read before the Institution during the last se (and then reported in our columns). He did wish in any way to traverse any of Mr. B dale's arguments, but rather to supplement by his present remarks. The work of the registry he regarded as most useful; but he c not help thinking that if the system were extensively adopted, it would be found that had been attempted than could be accomplis His opinion was that a register should no more than record the actual ownership, and mortgages and all other transactions shoul left to be dealt with independently of it, ju in the case of public funds and companies' s and shares. He could not agree that it was b to record mortgages as well as sales; but tho that if anything of the sort were attempted large scale it would be found to be impractic If the land registry was to succeed, it must the voluntary co-operation of those interested not by compulsion, or, if any compulsion were it must be of a kind that would be welcome not repelled. The first attempt, he believe give a Parliamentary title to land was the Encumbered Estates Act, 1858, under wh great part of the land of Ireland was sold w indefeasible title. The conveyance was made judge of the Landed Estates Court, and the chaser got a clean and clear title against a world. Here was an obvious opportuni establish a land registry; but the opport was allowed to pass by. The first Land Re Act in England was that of 1862, and Mr.

le had explained how and why it was a comrative failure. No titles were now registered der this Act; but it still governed land regised prior to the passing of the Act of 1875. der it the registrar was enabled, if satisfied t the title was such as the Act authorised him accept, to register the land with an indefeasible le, discharged of all claims, and he (Mr. Adams) ought that this principle might very well be opted now, with the result, at any rate, of largely reasing the business of the land registry. Mr. ams then proceeded to state briefly the process what is called an "Administration suit" in Chancery Division of the High Court, illusting it by the case of a man dying leaving a ll, the administration of which the parties inested desired to have carried out by the Court; rocess which he contended involved a waste of ne, trouble, and money, and he accordingly posed that the purchaser should receive, as der the Irish Encumbered Estates Act, a conyance executed by the judge, and that he uld be required (so thus far compulsion might used) to at once register that conveyance at the d registry, and have it still further confirmed a certificate of title. There would thus be no e to investigate and no conveyance to prepare, s being all done by the officials of the Court. e purchaser would simply pay his purchase ney and the stamp duty on the conveyance, l, it was obvious, could therefore afford to give etter price for the property. The effect would to substitute the purchase money for the proty sold, and to bar all persons who previously the sale were interested in the property from iming it, and to throw them back on the purse money. The court would undertake the y of seeing that the purchase money went to persons entitled to it, and, in the long run, injustice would be done. This process of subution was not a new one in legislation. Bes the Encumbered Estates Act, and the Act of 2, the General Enclosure Act, 1845, made the cel exchanged, immediately and for all purs, take the place of the one exchanged for it; l if this principle were adopted the purchaser uld be saved an expensive and troublesome intigation of title, and the vendor would be ply compensated for any extra trouble by the anced price obtained from a purchaser who w he would be spared expense. The Act sed in the last session of Parliament provided the compulsory registration of conveyances to ants in Ireland in precisely the way now pro-ed. He suggested that the transfer of land uld be modelled upon what was done in the nsfer of stocks and shares, and if it should be nd necessary hereafter to abandon the regision of dealings, other than those of absolute nership, it would only be requisite to take pretions against forgery and fraud, and to protect ocent persons from being affected by the dis-ery, after registration, of such forgery or fraud he instruments through which they claimed. next proceeded to show what were the risks lealing in registered land, and quoted the case Gibbs *v.* Messer, recently decided by the Privy ncil on appeal from the colony of Victoria, ere a system of registered title and transfer long been in operation, and where, moreover, re was an insurance fund available to meet such es of loss by fraudulent conveyance. To the posal to establish local registries Mr. Adams opposed, not on the question of principle bnt xpense, which he thought would be out of all portion to their usefulness. He proposed to the county courts as agents for the central istry, working as country banks do in transng their business through a London bank. se courts were within the reach of all, and ned to him to be the natural means by which carry on the non-metropolitan work of the istry. In dealing with the important question xpense, the author remarked that at first the s of the registry were so moderate that in 1872 aid 9s. for registering the conveyance of £2,750 th of land. In 1884 registering a mortgage for 00 on the same property cost a few shillings y, and in 1889 £6 5s. was paid to register a nsfer of this mortgage. The last fee was, he ught, much too high, and the fact that the up duty on a mortgage is 2s. 6d. per cent., on a transfer of mortgage only 6d. per cent., sufficient to show the relative value of the transactions. The land registry should, of rse, be self-supporting; but a very moderate *alorem* fee would be sufficient to pay for all it s and has to do. An insurance fund was ssary, but the premium for the very infinitesimal risk might be a small one. Any sort oi registration, if it be generally of use to and adopted by the public, must tend to reduce professional conveyancers' profits; but if it be really of value such an objection must never be allowed to stand in the way of an efficient and generally acceptable system of registration of title and transfer.

Mr. Munton, in proposing the vote of thanks, which was subsequently adopted by acclamation, said that he was somewhat surprised that the proposals for the registration of land title, which had been set forth in the paper, had been so readily adopted by surveyors. Mr. Brickdale had put the cost of obtaining a "possessory" title at 14d. per cent., and a complete title could, by his figures, be secured for about 2s. 4d. per cent. This flattering promise, he was afraid, could hardly be fulfilled. He saw no reason why the present system of accepting a presumably valid title could not be made to work as well as any possible scheme of registration, and he objected to Mr. Adams' proposals in that they involved a reference to the Court of Chancery, where no judge would pass a title so easily as it was now done. There was now very little practical difficulty in proving title, and he thought no change would be advisable.

Sir Henry Cartwright, in seconding the vote of thanks, expressed his belief that the establishment of some simple, ready and easy method of registration of title and transfer would be of immense benefit. He had had personal experience in the Bahamas of the great relief afforded to all dealing in land by such a measure, and he could only think that the clinging to old methods and old means of emolument, by the members of the profession who benefited by conveyancing, was the sole cause of the delay in the adoption of such an essentially necessary reform in England.

Mr. E. J. Castle, Q.C., said that in Scotland every deed of transfer of land must be registered in the Court of Session, and he saw no reason why the Clerk of the Peace, or of the County Council, or some other local official, might not be empowered to register the transactions in land referred to. Whether any registration at all would convey a clear title he was not sure, for he had in mind a case where land had been conveyed and re-conveyed many times, in spite of a governing deed which distinctly barred such conveyance, and he referred to another case where the freeholder having received a nominal rent per annum for premises would, at the termination of a very long lease, have had some difficulty in asserting his claim if the proposed system of granting an indefeasible title were adopted.

Mr. Adams having briefly replied to the remarks on his paper, the meeting then adjourned.

BOOKS RECEIVED.

A First Book of Mechanics for Young Beginners, with numerous easy Examples and Answers, by Rev. J. G. Easton, M.A. (London: Cassell and Company.)—Among the many treatises on mechanics for students which we have had to notice, it is somewhat difficult to pick out a good one for beginners. As a rule their authors or compilers assume too much; they take it for granted that the pupil is an adept in algebraic notation, or can solve a quadratic equation. Mr. Easton, in this very excellent little treatise, takes it also for granted that beginners know all about Euclid and quadratic equations. The belief in the youthful student's mathematical knowledge is unfortunate, for it often prevents the acquiring of an intelligent interest in this useful subject. We have yet another objection to some modern treatises, and that is the reversal of the old method of teaching. Formerly all works on mechanics began with statics and afterwards treated of dynamics; but now it is the fashion to begin with the motion of bodies and then proceed to deal with the rest of bodies. This inversion of the order has received the sanction of modern writers, and is recognised at Cambridge. We cannot say that the new method is so easy or comprehensible as the old one, which began with bodies at rest or with equilibrium of forces, and then proceeds to give a practical proof of the Parallelogram of Forces. Mr. Easton commences with kinematics, or the branch which treats of the geometry of motion. The motion of a particle, its velocity and acceleration, measurement of mass and force, is the procedure, after which the curve of velocity is dealt with, in which the proposition is given by which it is demonstrated that the space described by a moving body is represented by a given area, or the units of length in the path traversed is equal to the number of units of area. The composition of velocities which follows cannot be understood without a knowledge of trigonometry, or the ratio of the cosine of an angle. Kinetics is another branch. The laws of force and mass are a little above the requirements of many beginners. Newton's Second Law of Motion, that change of motion is proportional to the impressed force, is made to explain the Parallelogram of Forces, the dynamical proof of which is given. In this and the second part treating of statics, the examples are numerous and well selected for exercising the student's grasp of the subject. We think, however, that statical laws and principles are more readily comprehended by the student, and can be explained in simpler language. But here the author makes them follow after Newton's Laws, as being more logical. For more advanced students than mere beginners Mr. Easton's work will be acceptable.——*The London Householder's Chart*, by T. Miller Maguire, LL.D., of the Inner Temple, Barrister-at-Law (London: Simpkin, Marshall, Hamilton, Kent, and Co.), is a useful summary of the "Public Health (London) Act," 1891, which comes into operation on the 1st of January next. Dr. Maguire furnishes every householder in the metropolis with these provisions in the Act of Parliament which affect his health and comfort, by which he will be able to see what his rights and duties are. The pamphlet is divided into sections, which point out clearly all those nuisances which can be dealt with summarily by the new Act, such as accumulations, ashpits, cesspools, cisterns, drains, gutters, keeping of animals, &c.; also what the householder's remedies are, and what duties are imposed upon him with respect to nuisances. The duties of sanitary authorities in keeping streets clean, removing refuse, &c., are also given, and the penalties imposed for offences. The new regulations as to ashpits and water-closets are briefly pointed out, and the sections of the Act are given. The provisions as to water supply, infectious diseases, underground rooms, chimneys, &c., are important, and should be known by every house owner and tenant. A list of the vestries and district boards are given. As a digest or index of the Public Health Act of 1891, Dr. Maguire's little guide is also of value, as the various sections of the Acts are appended under each provision.——*Exercises for Technical Instruction in Wood-working*. Designed and drawn by H. Jay, technical instructor, Nottingham School Board, and arranged by E. R. Kidson, F.G.S., science demonstrator, Nottingham School Board (London: Longmans, Green and Co.)—These consist of a series of cards 6½in. by 5in., with carefully-drawn examples for the pupil in sawing and planing pieces of wood and framing. The first set in a case includes 32 plates, and gives exercises in preparing rectangular prisms, dividing them by the saw, making cubes, making boxes with nails, sawing obliquely, preparing prisms of octagonal and hexagonal, and many-sided shapes, cylinders. After these follow joints, half-lap, dovetail splice, making frames with half-lap joints, half-notching, mitre-joint, mortise-and-tenon joint. These exercises, it will be seen from this order, are so graduated that the pupil is taught, step by step, from the simplest operation of sawing and dividing to the more complex operations of gauging, setting out lines, and framing. Each exercise is described in words and illustrated by plan, side elevations, and isometrical perspective of the completed work. The diagrams are drawn to one scale of 6in. to 1ft. or half full-size. Set 2 contains a similar number of exercises, beginning with mitred mortise-and-tenon joints, mitred and closed, and going through various forms of joint, such as "closed and blind," "housed and tongued," dovetail joints, mitred dovetail, and several kinds of splice joints. In the third set the exercises advance to keyed mortise-and-tenon joints, "fox-tail," tusk-tenon joints, ploughing and rebating, grooving and tonguing, the framing of panelled doors and other works of joinery. The diagrams are clear and well drawn, and the views in projection are considerable aids to the pupil. We should say this form of exercises in detached plates will be valuable in all technical and board schools. The set of three cases in cloth, comprising 87 exercises, are published at 3s., or 1s. a case.

WAYSIDE NOTES.

WINTER delights are once more upon us, and the joys of fog and frost again our portion. For another season the average British householder will submit to the discomforts and miseries of a home without any means of general heating. Hence the English winter becomes, to all practical intents and purposes, more rigorous than that of a country like Canada, where, proper steps being taken for house-heating, low readings of the thermometer do not interfere with indoor comfort.

Of which fact I was reminded when reading Mr. Brodie's paper on American frame houses. Therein the author has described in outline the arrangements made for the general warming of such dwellings. A well-conceived plan is adopted from the first, with flues for the distribution of warmed air to the several apartments of the house. How seldom do we find any such arrangements in this country! Occasionally alterations are made in existing buildings; but rarely, indeed, are any attempts made to provide a system of heating at the time of construction. Yet there is no country where the warming of houses is of such importance as in these fog-girt British Isles. The Gulf Stream may have its blessings; but I doubt not but that it is also answerable for many a damp, misty day, so that if the ambition of the Yankee to deprive England of the benefits of the stream, by diverting its course, could be satisfied, we might not be without some slight compensation. Anyhow, we have an abundance of that good old English weather which so delighted the British tar coming up Channel after a long spell of the cloudless blue skies of other climes; and much we suffer from it in doctors' bills, colds, disease, and worse. Under such circumstances one would have expected to find that the first and most conspicuous feature of an English home was a well-arranged system of heating; for, much as mere cold renders such a system desirable, it is far more necessary as a protector against dampness. But we look in vain.

The hall fireplace is something; but vastly ineffectual when compared with more comprehensive systems of heating. It is an architect's apology for a proper arrangement. And as often as not this hall fireplace is designed solely as an architectural feature: I doubt whether one out of ten planners ever think of it other than as a something to add piquancy to his hall interior. Proof of this might be found in the relationship of the fireplace to the several surrounding doors, which, as ordinarily used, are calculated to create a draught past the fire, and thus draw out smoke and institute an evil that not all the genus of non-blow-down, dynamic, anti-cyclonic cowls—whose name is legion—will remedy. Consequently we find many houses where the hall fireplace is never used, and thus the only means of warming the house has to be foregone.

I would wish that these notes should instil into architects a desire to do something better in this respect. No one wants to go to America for architectural notions; but I do humbly submit that we have a lot to learn from that country in the matter of house-warming. With all our vauntings as to the comfort of English homes, we are miserably behind in questions of heating in its relation to domestic happiness. Why should we go on in the old way, undoubtedly causing avoidable ill-health, by the neglect of questions in connection with house-arrangements that are mere matters-of-course in other countries? It only shows how much of both fad and humbug there is in our day, that all sorts of elaborate contrivances are arranged in houses for the prevention of evils from sewer-gas when—in point of number of cases—enteric diseases are harmless as compared with the ravages of ailments referable to cold and damp.

I have never seen such a full meeting at the Society of Architects as that held on Tuesday last, when Mr. Middleton, the Secretary of the Society, read a most entertaining paper on the recent excursion in Belgium. If all enjoyed the reading of the paper as much as myself, then Mr. Middleton conferred much happiness on the assembly of members and friends, of whom a large proportion were of the gentler sex. It was a case of "standing-room only" by the time the lecturer commenced, and had there been many others desirous of attending, the management would have had to "turn away money from the doors," as the theatrical people say. The limelight views were excellent, and all the recognised "lions" of Flemish architecture were displayed on the sheet, besides little bits from odd nooks and crannies of the Old World cities.

Mr. Middleton has had much practice as a lecturer, and consequently the account of the Society's excursion was delivered in a pleasant, deliberate way that could not fail to hold the attention of his audience, and was just suited to the limelight method of illustration, which requires something over and above the mechanical reading of an inexperienced lecturer. A paper descriptive of ancient architecture and illustrated by views loses half its value, unless the reader possesses the faculty of making digression—explaining here a piece of construction, there a bit of detail—as he proceeds. And there was a good deal of this sort of work to do on Tuesday evening. The extent of the tour was so great, and the number of the buildings seen and illustrated so large, that the mere work of explaining the different slides was no light task. It all proved that the Society had a most enjoyable time when on their excursion, and that the members who joined the party will be quick to avail themselves of any future trips abroad that the Council may arrange.

I read of quite a death-roll of City churches in the *City Press*. St. George, Botolph-lane, is "marked for removal," and so also are the churches of St. Mildred, Bread-street; All-hallows the Great, Thames-street; and St. Michael, Wood-street; St. Olave, Old Jewry; and St. Mary Magdalen, Knightrider-street, will soon be known by name only. I am glad that people have raised their voice against the proposed wholesale demolition of the City churches. The parishioners of St. Mildred pronounced so strongly against a report which suggested the removal of their church, that the matter is in abeyance for the time. A commission, says the *City Press*, will be shortly issued to consider and report upon the expediency of a union of St. Dunstan in the East and Allhallows Barking. It is doubtful whether the commission will be bold enough to recommend the removal of either of the churches. It would be a pure act of vandalism to destroy the architecturally and archæologically interesting church at Barking, founded by St. Erkenwald, Bishop of London, in 675. And we all know that St. Dunstan in the East claims regard for its unique features and general excellence in its own way. The following churches are now closed:—Allhallows, Upper Thames-street; St. George, Botolph-lane; St. Margaret, Lothbury (for repairs); St. Martin, Ludgate-hill; St. Mary-at-Hill, and St. Mary Magdalen, Old Fish-street. St. Mary-at-Hill is said to be in a very insanitary condition; and it is also believed that St. Mary Woolnoth—only reopened on All Saints' Day last—will require to be again closed. The City churches have evidently been having a bad time lately, and are falling into the hands of enemies and others not so careful of their preservation as they might be.

The Brighton Corporation did not do a wonderfully clever thing when they let the opportunity to secure the Dyke estate slip into the hands of an American speculator, who promised to make "a veritable Paradise" of the site. Apparently, the intention is so far being realised that a couple of brick piers are being erected on the sides of the road leading from the station, with the evident ultimate destination of supporting something in the shape of a triumphal arch over the entrance into the Paradise aforementioned. Then, a post-and-rail fence is being erected where once we used to freely tread the greensward. It is all to be infinitely regretted. The Dyke was always a favourite resort of visitors to Brighton; in future, I suppose, a toll will always be charged for all wishing to stand upon the summit of the Downs at this spot, which commands the far-famed prospect over the Sussex Weald, with its hills and dales, oak glades, and many white church-spires.

I hope you will reproduce the sensible leader in Tuesday's *Times* on the "Art or Profession" question. Mr. W. H. Seth-Smith's letter in the same issue is a singularly moderate and judicious one, and for once I see it was practically echoed the next day by the President of the Institute. That is probably the future destiny of the Institute—to say ditto to the Society in regard to questions of the kind, now that it has lost its old leadership. Mr. William Woodward's letter which also appeared on Tuesday, is pregnant with sound sense, and must carry conviction to reasonable people. There is not much else worth reading in the other letters that have appeared. The gentlemen on the other side are earnest, but hardly to be taken seriously, I fancy; while the cheerful little rat-squeaks of the believers in Mrs Grundy and 9, Conduit-street, are very amusing.

GOTH.

COMPETITIONS.

ANOTHER ASYLUM FOR LONDON.—At Tuesday's meeting of the London County Council it was announced that it had become absolutely necessary to provide an additional lunatic asylum for Metropolitan pauper patients. After some discussion the Asylum Committee was authorised to expend a sum not exceeding £100 for advertising and obtaining such professional assistance as may be required to enable them to select a suitable site for the erection of asylum buildings to accommodate 1,000 patients; and further to ascertain, for the consideration of the council, the terms upon which such site may be purchased.

BATTERSEA.—The new Town-hall competition has been settled, and we hoped, and ought to have been able, to have given our usual review of the drawings in this issue; but on application we were informed by the Clerk that the designs could not be seen yet, but would be on view next week. The vestry meeting held on Tuesday night confirmed the award of Mr. Wm. Young, F.R.I.B.A., the referee. Mr. E. W. Mountford, F.R.I.B.A., wins the first premium; Mr. H. A. Cheers, of Twickenham, the second; and Messrs. Rees and Macdonald gain the third prize.

BRADFORD.—The design of Mr. John Jackson, architect, Barry-street, Bradford, has been accepted in public competition for the new Baptist chapel.

CADOXTON-JUXTA-BARRY.—The Barry and Cadoxton Burial Board recently advertised for plans to be submitted in competition for the erection of a new cemetery chapel on a site next to Merthyr-Dovan Church, to accommodate about 100 persons. The successful architect was to be intrusted with carrying out the work at a commission (including quantities) of 7½ per cent. The building was to cost £800, and a clerk of the works provided by the board. The second premium to be five guineas. The board met on Friday last, at the Local Board Offices in Vere-street, Cadoxton, Mr. Jno. Robinson, M.I.C.E., in the chair, when the selected design was found to be by Messrs. Bruton and Williams, architects of Cardiff and Cadoxton, and the second premium awarded to Mr. Owen, also of Cadoxton.

CHIPS.

At the opening meeting of the Society of Arts medals awarded by the council were presented to Col. Sir Charles Wilson for his paper on "Methods and Processes of the Ordnance Survey," to Mr. A. P. Laurie for his paper on "The Durability of Pictures painted with Oils and Varnishes," to Mr. William Simpson, for his paper on "Lithography: a Finished Chapter of Illustrated Art," and to Mr. G. T. Robinson, F.S.A., for his paper on "Decorative Plaster Work: Modelled Stuc Work."

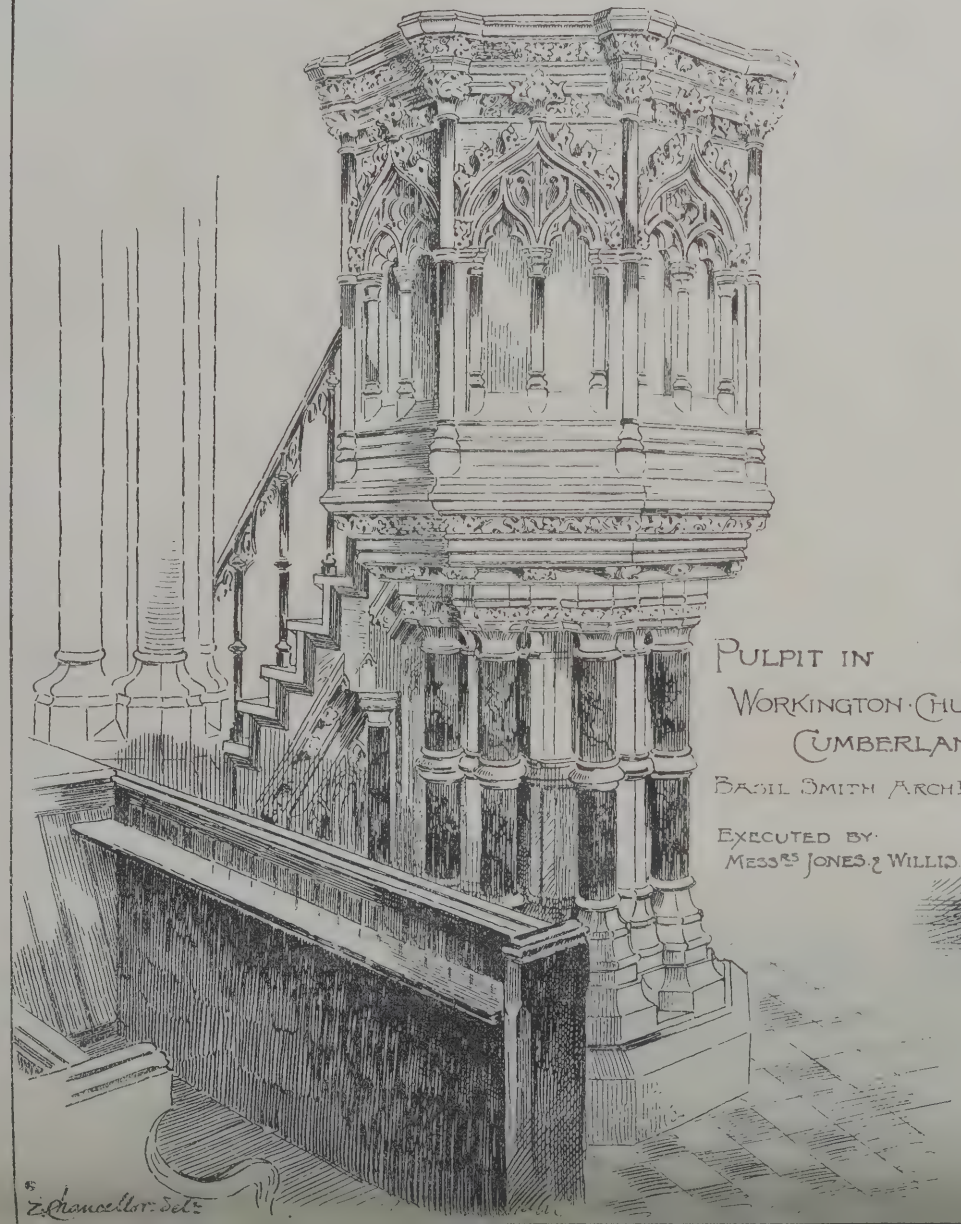
Mr. Willson, surveyor to the local board at Ashford since May, 1884, died last week after a short illness. A special meeting of the board was held on Monday, when a vote of sympathy to the family was agreed to.

It is proposed to erect at Rhyl a hydropathic establishment containing 70 bedrooms, and the usual suites of Turkish, Russian, salt-water, and other baths. The site is at the corner of the Marine-drive and Ty-Newydd-road. Messrs. Essex and Nicholl of Birmingham, are the architects.

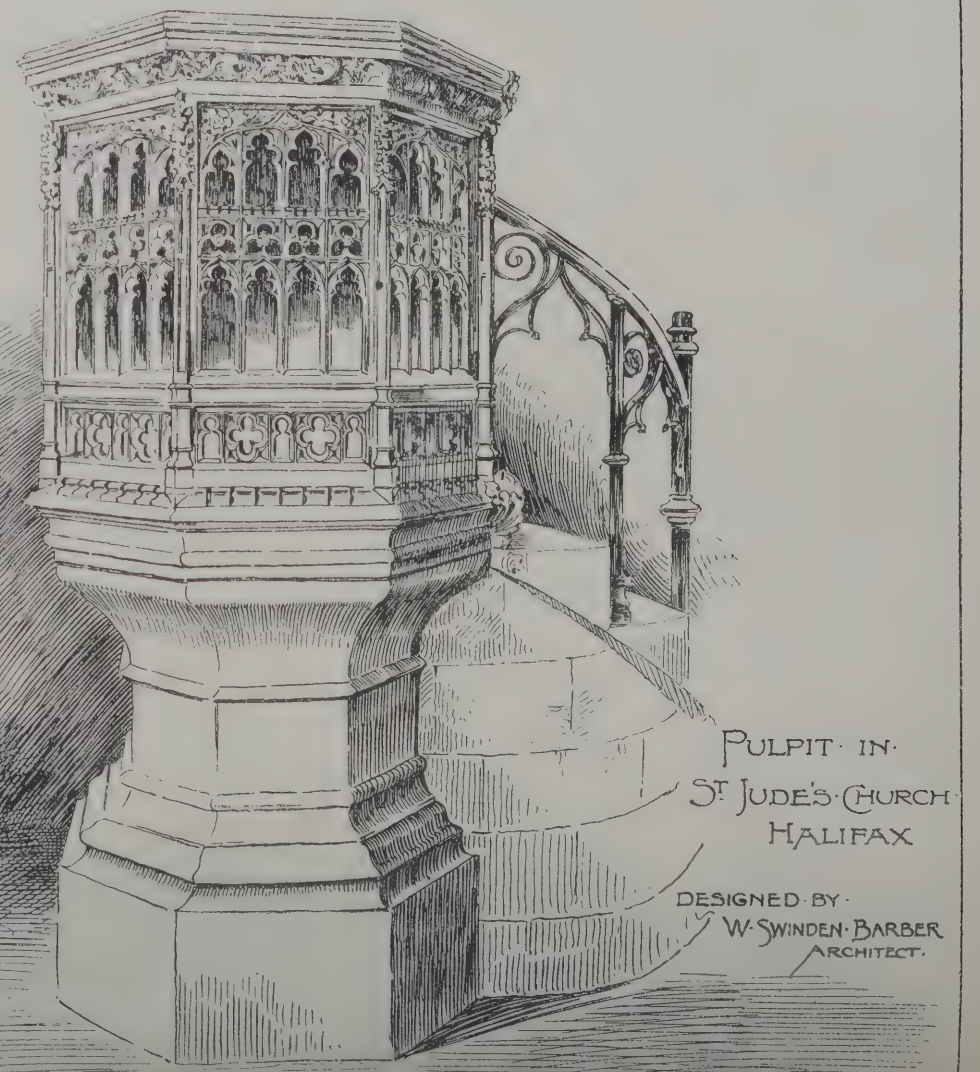
Mr. Preston, C.E., attended a meeting of the Wetherby sanitary authority on Thursday in last week, and laid on the table the plans for the proposed new drainage scheme for that place. The cost will be about £5,000.

On Saturday evening the first of a series of popular lectures on art subjects, promoted by the Corporation of Glasgow in connection with the galleries, was given by Mr. F. H. Newbery, headmaster of the Glasgow School of Art in the Corporation galleries, Sauchiehall-street. The subject was "Technical Processes in Art."

TWO MODERN PULPITS.



PULPIT IN
WORKINGTON CHURCH
CUMBERLAND.
BASIL SMITH ARCHT
EXECUTED BY
MESSRS JONES & WILLIS



PULPIT IN
ST JUDE'S CHURCH
HALIFAX
DESIGNED BY
W. SWINDEN BARBER
ARCHITECT.



"KOWLOON POINT" FOR MESSRS SHARP & CO OF HONG-KONG.

EDWARD A RAM AGENT HONG-KONG

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ILLUSTRATIONS.

N CUPOLAS AND DOMES.—ALTAR-PIECE, STALSHUND CH, BLACK FOREST.—THE GRANGE, HINDHEAD, EMERE.—AN OLD INN STAIRCASE, DEDHAM.—THE TRAFALGAR THEATRE, ST. MARTIN'S-LANE, W.C.—ES, THE ESPLANADE, SIDMOUTH.—"KOWLOON POINT," KONG.—PULPITS AT WORKINGTON AND HALIFAX.

Our Illustrations.

ASTERN CUPOLAS AND DOMES, DRAWN BY M. ALPHONSE GOSSET, ARCHITECT.

LUME of much practical value on domes and as has been published in Paris* by M. nse Gosset, architect, to which we draw ion to-day by publishing a series of illus- ns from its pages. These reproductions, we have been enabled to make by the esy of Mr. A. Levy, who brought out the are chiefly confined to Byzantine and rn examples; but the subject in the book ich more widely treated with specimens Italy, France, England, and America, in- ig also Russian and Persian instances. We t propose to follow the author through his rate treatise, in which he traces the origin volution of the cupola. The subject is too or a mere brief epitome, and we must refer eaders to the volume itself for M. Gosset's and facts respecting it. One of the est class of domical structures are those ibtedly of the different Mohammedan nations, Morocco and Southern Spain, in Egypt, Turkey, and Persia, and India. The first is Ishoot of the Byzantine style, which was adopted and then developed by infidel ierers. The second is carred out with the ed arch, and generally with corbels instead ndentives. The cupola belonged by right to an architecture, and, as Sir Gilbert Scott sums .e history, it was continued in the same style . it became Christian, was wonderfully oped in the Eastern and Christian Roman ire; was continued in the Middle Ages in , and transplanted into Germany and ce; then it was taken up during the early of the Renaissance from the unfinished ic Cathedral at Florence, and through that Mediæval, semi-Renaissance graft was ughly adopted into the revived Classic styles. hemispherical dome does not appear to have historically the primeval type, simple as its is, but the earliest known domes assume, in n, the form of a lofty, pointed arch, as in upposed tomb of Agamemnon at Mycenæ, n centuries before the Christian era, and n Assyrian sculptures. From these till we e at the Pantheon—a simple rotunda, 142ft. nal diameter, erected in the reign of Augus- -we have scarcely any certain evidences of istory of the dome. The pendentive dome, gh occasionally used at an earlier period, lished itself about the time of the Emperor nian, and its central seat was Constantinople. earliest church remaining in that city seems to be that of SS. Sergius and Bacchus. Its dome is supported by an octagon. In section it is conchoidal, and is supported by sixteen pendentives, resembling greatly the Temple of Minerva Medica. The Church of the Apostles was a contemporary work, but it is now destroyed. The great glory of this age, however, is St. Sophia, which has never been equalled as a specimen of domical structures. The primary ideal of its design is simplicity itself, and yet the effect is one of great intricacy and of continuous gradation of parts from the arcades up to the stupendous dome, which hangs with little apparent support like a vast bubble over the centre, or, as Procopius, who witnessed its erection, described it, "as if suspended by a chain from heaven." We give an exterior view of the building as drawn by M. Gosset. The dome is lighted by forty small windows, which pierce immediately above the cornice which crowns the pendentives. When finished, its Imperial founder, in exultation, exclaimed, "Glory be to God who hath thought me worthy to accomplish so great a work! I have vanquished thee, O Solomon!" We also print a view of the apse of this cathedral. The Mosque of Sultan Selim at Adrianople, Turkey, also shown on our sheet, was erected about 1568 from the designs of an architect named Sinan. It is remarkable for its grand dimensions and picturesque outline. It is richly decorated, and cleverly constructed in brick, and faïence is introduced with marble and hard stone. The other modern work shown on our plate—viz., the Mosque of Suleiman at Constantinople—was erected in 1650, and is one of the grandest buildings of its kind in the world, with a sumptuous harem and baths. The door to the former is seen to the left of the picture, and the fountains to the right under the arcades. The mosque, built in imitation of St. Sophia's, forms a rectangle of great size, surmounted in the centre by the dome pleasingly grouped midst the minor cupolas of the composition. The accompanying interior illustrates the Pavilion of the Eight Gates of Paradise at Ispahan, which is elaborately designed in Persian splendour, with colours of the richest kind introduced in the vaultings of the dome. The only Gothic specimen of a cupola-covered structure figured on our sheet is a plan of the chapel at Ani in France, which, although of 11th-century date and Romanesque in style, surmounted by a pointed cone-like roof, in a way bears reference to the Temple of Minerva Medica. The Russian Church at Kiev is a typical work designed on the Byzantine plan, with five cupolas carried up in bulbous forms, fantastic in fashion, but singularly adapted to their surroundings. It is a curious fact that the highly-painted cupolas seen throughout Russia, crude in their primary tints—either bright blue, yellow, or red—seem to fit into their places with a wonderful quietness of effect, and it is the great ambition of those who can afford the luxury to leave large sums of money to continually repaint the exteriors of the domes of Russian churches, so that they are constantly bright and new-looking. M. Gosset's book is copiously illustrated, and has many recent specimens of Dome building represented in its pages, such as the Pavillon des Beaux Arts in Paris, and the Exhibition buildings there of 1878 and 1889. Mr. Emerson's selected design for Liverpool Cathedral is also illustrated. When bound, the work will make an uncommonly good book for reference.

*Les Coupoles d'Orient et d'Occident. Etude ique, théorique, et pratique; accompagnée de 26 hes and de plus de 70 vignettes dans le texte. Par onse Gosset, architecte. Paris: A. Levy, 13, Rue ette.

ALTAR PIECE, STALSHUND CHURCH, BLACK FOREST.

We are indebted for the photograph from which this illustration is reproduced to Dr. T. R. Allinson, L.R.C.P., the medical editor of the *Weekly Times and Echo*. The photograph was shown at the last Photographic Exhibition at the Crystal Palace, and seemed to us well worth reproduction, if only on account of the wealth of imaginative detail with which the sculptor has treated his sacred subject.

THE GRANGE, HINDHEAD.

This house, situated on the south-west slope of Hindhead, and at a height of about 800ft. above the sea-level, was built for Mr. F. Jackson, not only as a summer residence, but with the intention of being used also in winter; the dryness of the soil and atmosphere rendering this elevated position most enjoyable. For the above reasons the plan is somewhat unusual; the large central hall, two stories high, being intended to afford a means of taking some little exercise indoors in very bad weather; it also provides a suitable position for Mr. Jackson's fine organ, to receive which a recess was especially provided. This hall has also a large chimney corner, with an open dog grate, as well as a hot-air apparatus to regulate its temperature. Along the south-west side of the hall there is a verandah, with a gallery over it, and protected by the projecting drawing-room and dining-room wings, it forms a perfect sun trap; on a bright winter's day it is quite possible to have afternoon tea here in the open. Most of the other arrangements of the house will be clearly shown by the plan; but it should be noted that all the main walls are built of concrete, plenty of stones being available on the estate, and thus the very serious cost of carting bricks to such an elevated position was avoided. The general contractors were Messrs. Colls and Sons, of London and Dorking, who carried out the work under the personal superintendence of the architect, Mr. Wilfred J. Hardcastle, of 19, Surrey-street, Strand. The roof tiles were supplied by Mr. J. C. Edwards, of Ruabon, the sanitary fittings by Messrs. Doulton and Co., and some of the internal fittings by Messrs. Arrowsmith, of Bond-street.

OLD INN STAIRCASE, DEDHAM, ESSEX.

This delightful old specimen of English Domestic work was shown by Mr. Chas. F. Urquhart, of Kensington, in his beautiful bromide print, at the recent Photographic Exhibition at Pall Mall. He writes:—"The photograph is a 'bit' of the Sun Inn at Dedham, Essex, and was taken in the yard of that old-fashioned hostelry. The Sun is of a respectable age, and its appearance is that of the old-fashioned, comfortable sort of inn that one occasionally comes across in the course of one's rambles in the country. The district round about Dedham abounds in similar picturesque and quaint subjects for a picture, and to anyone wishing to spend a quiet holiday in an old-world spot, I would certainly say, Go to Dedham. As to the architectural quaintness of this particular picture, your readers will best form their own judgment."

THE NEW TRAFALGAR THEATRE.

The new theatre in St. Martin's-lane, now being built for Mr. and Mrs. Frank Wyatt, is nearly ready to be roofed in. In consequence of the various alterations required by the London County Council and the freeholder (Lord Salisbury), an entirely new elevation has had to be designed for the building which is now illustrated. The theatre is absolutely isolated on four sides, being surrounded by passage-ways entirely on its own ground. The position of the theatre in this case is saved from many of the disadvantages of isolation by there being only one public roadway (St. Martin's-lane), which is on the east side. A good deal of inconvenience in isolating small theatres arises from the fact that the noise of the traffic disturbs the performers. The theatre consists of four tiers—viz., pit and stalls, dress circle, upper circle, and gallery, and will hold in all about 1,250 persons, which, at the ordinary theatre prices, would produce about £250 per night. The interior of the theatre is of Renaissance design. The ventilation is being carried out by the same simple system which was lately so successfully used in the Albert Music Hall, Canning Town, which consists of extracting heated and vitiated air by exhausts, allowing sufficient fresh air to pass into the building through shafts arranged in the side walls. The whole construction of the theatre is fireproof, except, of course, the stage, which, however, is protected by a system of sprinklers, the whole house being supplied with numerous hydrants. There are eleven exits and entrances for the accommodation of the public. The seat coverings, silk hangings, &c., are being carried out in pale amber, backed with a warm terracotta colour. On the first-floor level there will be spacious saloons together with a smoking gallery in the open air. The dressing-rooms are erected in an entirely separate block, with staircase communication to the street without passing through the theatre, so that in case of fire they can be absolutely shut off, and the artistes escape without danger. The ante-room to the Royal box is being decorated in the style of Louis XV. period. All the more exposed portions of the stonework in the front of the building are being made of imitation stone. The drawings given show the section and plans of the theatre. The building will be lighted by electricity supplemented by gas. The act drop is being painted

by Mr. Henry Emden. The contractor for the work is Mr. Frank Kirk, of 19, Abingdon-street, Westminster, and the architect is Mr. Walter Emden, of 105 and 106, Strand.

HOUSES, THE ESPLANADE, SIDMOUTH.

THESE houses, now being built for Mr. K. R. Balfour, are intended either as lodging-houses or private residences. Local red bricks are used throughout the buildings, with pressed red bricks and stone to principal fronts; rough-cast in the gables and upper stories, with oak timber work. The contractors for the whole of the works are Messrs. R. W. and I. Skinner, of Sidmouth. Mr. R. C. Murray is the architect.

"KOWLOON POINT."

THIS building has been recently erected for Messrs. Sharp and Co., on British territory at Kowloon, immediately facing the city of Victoria, Hong Kong. It is built upon the bund, which has only recently been reclaimed from the harbour, and being upon made ground the whole of the foundations have been piled with sticks of hardwood, from 8ft. to 12ft. long, and averaging 8in. in diameter. These have been spaced 2ft. centre to centre, and have been driven by manual labour with a timber-monkey, weighing about 280lb. These monkeys are worked by 12 Chinese, with a fall of about 3ft., and deliver 20 to 25 strokes per minute. The walls are of bricks plastered, with white granite plinth, dressings, and strings, &c. Red bricks of very good quality are made at Canton, and these have been used on the ground floor, and for all arches, piers, &c., the rest of the walling being of blue bricks. The roof is covered with a double course of Canton pan and roll tiles. The joinery and flooring are of teak, and most of the carpentry is of Manilla hardwood. The first and second floors are arranged as residential chambers, each floor being complete in itself, with bathrooms, servants' quarters, &c., whilst the ground floor is designed to fulfil the requirements of godowns (warehouses). Mr. Edward A. Ram, of Hong Kong, was the architect, and the whole of the work has been executed by Chinese contractors.

TWO MODERN PULPITS.

THERE is a considerable contrast between the two pulpits represented side by side in our pages this week. Both are good in their way. The one to the left is at Workington Church, Cumberland, and was made by Messrs. Jones and Willis from the design of Mr. Basil Smith, the architect. The pulpit proper is well elevated on a base of clustered shafts, and the detail throughout is refined in character. It is made in stone, with the exception of the columns, which are of marble. The pulpit to the right forms one of the fittings in the church of St. Jude, Halifax, York. It is of a sturdier description than the other one, and designed in a later style. It is made in oak, and stands on a local stone base, and is from the design of Mr. W. Swinden Barber, architect, of Halifax, and the work has been creditably carried out by Messrs. J. Charnock and Sons, the builders of the church. We illustrated the building in our pages on Nov. 14, 1890.

CHIPS.

The University Library of Leipsic has been removed into its new premises, which have been built on the models of the Vienna and Paris libraries at a cost of £150,000.

Mr. Ralph Heaton, one of the founders and the head of the Birmingham Mint, died at his residence, Courtlands, Edgbaston, on Thursday in last week, in his 65th year, after a long and painful illness. His grandfather, and subsequently his father, conducted a prosperous business as brassfounders, stampers, and manufacturers of metal tubes, to which in 1850 was added the manufacture of coins.

The Executive Council of the County Councils Association have resolved to contribute £300 out of their funds in aid of the expenses of a test case arising out of what is known as the Warminster decision, by which county councils were held liable to contribute towards the cost of the maintenance of footpaths by the side of main roads in urban districts within a county.

Owing to the recurrence of typhoid fever this autumn at Southend, the local board of health have called in Mr. Mansergh, C.E., to examine and report upon the state of their sewers. During the past few months the sewers have been cleansed and flushed, at a considerable cost, by means of dissolved sulphate of iron.

PRICES.—XXIV.*

(All Prices Include Profit).

ADDENDA.

TO the regulations issued by the Comm'ssioners of Sewers of the City of London add the following:—

"No advertisements allowed on hoardings unless specially licensed."

"The charge for all hoards will be calculated on the assumption that they are to be 40ft. high. Any additional height will be charged according to the scale already given."

JOINER (*continued*).

VENETIAN SASHES AND FRAMES.

		£	s.	d.
2in. deal moulded sashes and frames, double-hung across side lights, side-lights fixed in deal-cased frames, oak sunk and weathered sills, brass axle pulleys, best flax lines, iron weights, &c.	per foot super.	0	1	3
Ditto side-lights hung	ditto	0	1	5
Ditto with segment heads squared inside	ditto	0	1	7
Ditto segment heads inside and out, and linings cut to sweep	ditto	0	1	9
Ditto semi-head outside, and square inside	ditto	0	1	10
Ditto ditto both sides	ditto	0	2	0
Ditto circular on plan to slow sweep	ditto	0	2	6
Ditto ditto quick	ditto	0	3	6
Ditto ditto slow sweep and segment heads outside	ditto	0	3	10
Ditto ditto quick sweep and ditto	ditto	0	4	2
Ditto semi-heads outside, and slow sweep	ditto	0	4	4
Ditto ditto quick	ditto	0	4	9
2½in. deal moulded sashes and frames, double hung, &c., as in first item of 1½in. ditto	ditto	0	1	4
Ditto ditto side lights hung	ditto	0	1	6
Ditto with segment heads square inside	ditto	0	1	9
Ditto ditto inside and out, and linings cut to sweep	ditto	0	1	11
Ditto semi-head outside, and square inside	ditto	0	2	0
Ditto ditto both sides	ditto	0	2	2
Ditto circular on plan to slow sweep	ditto	0	2	9
Ditto ditto quick	ditto	0	3	9
Ditto ditto slow sweep and segment	ditto	0	4	1
Ditto ditto quick sweep and ditto	ditto	0	4	4
Ditto semi-heads outside and slow sweep	ditto	0	4	7
Ditto ditto quick	ditto	0	5	0
2½in. deal moulded sashes and frames, double hung, &c, as in first item of 1½in., ditto	ditto	0	1	6
Ditto ditto side-lights hung	ditto	0	1	8
Ditto with segment heads square inside	ditto	0	2	0
Ditto ditto inside and out, and linings cut to sweep	ditto	0	2	2
Ditto semi-head outside and square inside	ditto	0	2	3
Ditto ditto both sides	ditto	0	2	5
Ditto circular on plan to slow sweep	ditto	0	3	0
Ditto ditto quick	ditto	0	4	0
Ditto ditto slow sweep and segment heads outside	ditto	0	4	4
Ditto ditto quick sweep and ditto	ditto	0	4	8
Ditto semi-heads outside and slow sweep	ditto	0	4	10
Ditto ditto, quick ditto	ditto	0	5	3

SASHES ONLY.

1½in. deal moulded sash	per foot super.	0	0	6
Ditto ditto small squares	ditto	0	0	8
Ditto ditto segment heads	ditto	0	0	8
Ditto ditto semi-heads	ditto	0	0	10
Ditto ditto with marginal bar	ditto	0	0	8
Ditto ditto circular on plan to a slow sweep	ditto	0	1	2
Ditto ditto ditto quick sweep	ditto	0	1	6
Add for fixing	ditto	0	0	1
2in. deal moulded sash	ditto	0	0	7½
Ditto ditto small squares	ditto	0	0	9
Ditto ditto segment heads	ditto	0	0	9
Ditto ditto semi-heads	ditto	0	0	11
Ditto ditto with marginal bars	ditto	0	0	9
Ditto ditto circular on plan to a slow sweep	ditto	0	1	4
Ditto ditto quick ditto	ditto	0	1	8
Add for fixing	ditto	0	0	1
2½in deal moulded sash	ditto	0	0	8
Ditto ditto small squares	ditto	0	0	11
Ditto ditto segment heads	ditto	0	0	11
Ditto ditto semi-heads	ditto	0	1	1
Ditto ditto with marginal bars	ditto	0	0	11
Ditto ditto circular on plan to a slow sweep	ditto	0	1	6
Ditto ditto quick ditto	ditto	0	1	11
Add for fixing	ditto	0	0	1½
2½in. deal moulded sash	ditto	0	0	9
Ditto ditto small squares	ditto	0	1	0
Ditto ditto segment heads	ditto	0	1	1
Ditto ditto semi-heads	ditto	0	1	3
Ditto ditto with marginal bars	ditto	0	1	1
Ditto ditto circular on plan to a slow sweep	ditto	0	1	9
Ditto ditto quick ditto	ditto	0	2	2
Add for fixing	ditto	0	0	1½

* All rights reserved by the Author.

		£	s.
Rebating bottom rail of sash	per foot super.	0	
Splayed edge to ditto included in price of fixing, &c.			
All small sashes must be priced at a higher rate.			
1½in. deal moulded casements, without bars	per foot super.	0	
Add for ordinary bars, say two	ditto	0	
Ditto to form small squares	ditto	0	
Ditto marginal bars	ditto	0	
Ditto hanging	ditto	0	
Ditto ditto folding	ditto	0	
Ditto segment heads	ditto	0	
Ditto semi-heads	ditto	0	
1½in. ditto circular on plan, to slow sweep	ditto	0	
Ditto ditto quick sweep	ditto	0	
2in. deal moulded casements, without bars	ditto	0	
Add for two bars	ditto	0	
Ditto small squares	ditto	0	
Ditto marginal bars	ditto	0	
Ditto hanging	ditto	0	
Ditto ditto folding	ditto	0	
Ditto segment heads	ditto	0	
Ditto semi-heads	ditto	0	
2in. ditto circular on plan	ditto	0	
Ditto ditto quick sweep	ditto	0	
2½in. ditto without bars	ditto	0	
Add for two bars	ditto	0	
Ditto to form small squares	ditto	0	
Ditto marginal bars	ditto	0	
Ditto hanging	ditto	0	
Ditto ditto folding	ditto	0	
Ditto segment heads	ditto	0	
Ditto semi-heads	ditto	0	
2½in. ditto circular on plan	ditto	0	
Ditto ditto quick sweep	ditto	0	
2½in. ditto without bars	ditto	0	
Add for two bars	ditto	0	
Ditto for small squares	ditto	0	
Ditto marginal bars	ditto	0	
Ditto hanging	ditto	0	
Ditto ditto folding	ditto	0	
Ditto segment heads	ditto	0	
Ditto semi-heads	ditto	0	
2½in. circular on plan	ditto	0	
Ditto ditto quick sweep	ditto	0	
All small casements must be priced at a higher rate (see under).			
FANLIGHTS AND SMALL SASHES OR CASEMENTS—			
1½in. deal moulded fanlights, no bars	per foot super.	0	
Add for two bars	ditto	0	
Ditto small squares	ditto	0	
Ditto marginal bars	ditto	0	
Ditto hanging	ditto	0	
Ditto segment heads	ditto	0	
Ditto semi-heads	ditto	0	
Ditto marginal bars to segment heads	ditto	0	
Ditto ditto semi-heads	ditto	0	
2in. deal moulded fanlights, no bars	ditto	0	
Add for two bars	ditto	0	
Ditto small squares	ditto	0	
Ditto marginal bars	ditto	0	
Ditto hanging	ditto	0	
Ditto segment heads	ditto	0	
Ditto semi-heads	ditto	0	
Ditto marginal bars to segment heads	ditto	0	
Ditto ditto semi-heads	ditto	0	
2½in. deal moulded fanlights, no bars	ditto	0	
Add for two bars	ditto	0	
Ditto small squares	ditto	0	
Ditto marginal bars	ditto	0	
Ditto hanging	ditto	0	
Ditto segment heads	ditto	0	
Ditto semi-heads	ditto	0	
Ditto marginal bars to segment heads	ditto	0	
Ditto ditto semi heads	ditto	0	
2½in. deal moulded fanlights, no bars	ditto	0	
Add for two bars	ditto	0	
Ditto small squares	ditto	0	
Ditto marginal bars	ditto	0	
Ditto hanging	ditto	0	
Ditto segment heads	ditto	0	
Ditto semi-heads	ditto	0	
Ditto marginal bars to segment heads	ditto	0	
Ditto ditto semi-heads	ditto	0	
SKYLIGHTS—			
1½in. deal chamfered and rebated skylight	ditto	0	
Ditto moulded	ditto	0	
1½in. deal chamfered, &c., but irregular in shape	ditto	0	
Ditto moulded	ditto	0	
Add for hanging	ditto	0	
2in. deal chamfered and rebated, as first	ditto	0	
Ditto moulded	ditto	0	
Ditto chamfered and irregular-shaped, measured net	ditto	0	
Ditto ditto moulded	ditto	0	
Add for hanging	ditto	0	
2½in. deal chamfered, &c.	ditto	0	
Ditto moulded	ditto	0	
Ditto chamfered, but irregular in shape	ditto	0	
Ditto ditto moulded	ditto	0	
Add for hanging	ditto	0	
2½in. deal chamfered, &c.	ditto	0	
Ditto moulded	ditto	0	
Ditto chamfered, but irregular in shape	ditto	0	
Ditto ditto moulded	ditto	0	
Add for hanging	ditto	0	
3in. deal chamfered as before	ditto	0	
Ditto ditto moulded ditto	ditto	0	

		£	s.	d.
deal chamfered, but irregu-				
r in shape	per foot super.	0	0	11
o ditto moulded ditto	ditto	0	1	0
for hanging	ditto	0	0	1
ing hip-angles on splay	per foot run	0	0	3
oving for drips	ditto	0	0	0½
o cross-grain	ditto	0	0	1
lensation groove	ditto	0	0	1
es for ditto	each	0	0	2

SKYLIGHT CURBS AND LININGS.

staff beaded lining, wrought				
ie side, and grooved together				
id nailed at angles and				
xed	per foot super.	0	0	6
ditto ditto	ditto	0	0	7
. ditto ditto	ditto	0	0	7½
. ditto ditto	ditto	0	0	8
ditto ditto	ditto	0	0	9
wrot., matched, and beaded				
tto, ends only fitted, and in-				
uding fixing	ditto	0	0	5
ditto ditto	ditto	0	0	5½
i. ditto ditto	ditto	0	0	6
i. ditto ditto	ditto	0	0	6½
i. rough curb, grooved at				
ngles and fixed	ditto	0	0	6
i. ditto ditto	ditto	0	0	6½
ditto ditto	ditto	0	0	7
i. ditto ditto	ditto	0	0	7½
ditto ditto	ditto	0	0	8

SHOP-FRONT SASHES.

deal moulded sashes in one				
rge square, each	ditto	0	0	6
to ditto with large inter-				
iediate bars, say 3ft. apart	ditto	0	0	8
to ditto with top part in				
nall squares and large bars	ditto	0	1	0
to ditto circular on plan, no				
ars	ditto	0	1	0
to ditto ditto with bars 3ft				
part	ditto	0	1	6
to ditto ditto with top part				
a small squares	ditto	0	2	0
d to straight if fancy moulded				
ars	ditto	0	0	1
to ditto to top part in small				
quares	ditto	0	0	1½
to ditto to circular ditto	ditto	0	0	2
to ditto ditto small squares	ditto	0	0	3
a. deal moulded sashes in one				
arge square, each	ditto	0	0	7
to ditto large intermediate				
ars, about 3ft. apart	ditto	0	0	9
to ditto top part small squares				
nd large bars	ditto	0	1	1
to ditto circular on plan, no				
ars	ditto	0	1	2
to ditto ditto with bars 3ft.				
part	ditto	0	1	8
to ditto ditto top part in				
mall squares and large bars	ditto	0	2	3
a. deal moulded sashes in one				
arge square, each	ditto	0	0	8
ito ditto with large inter-				
nediate bars, about 3ft. apart	ditto	0	0	10
tto ditto top part in large				
quares and large bars	ditto	0	1	3
tto ditto circular on plan, no				
ars	ditto	0	1	4
tto ditto ditto with bars 3ft.				
part	ditto	0	1	10
tto ditto ditto top part in				
mall squares and large bars	ditto	0	2	6
a. deal moulded sashes in one				
arge square, each	ditto	0	0	10
tto ditto with large inter-				
nediate bars about 3ft. apart	ditto	0	1	1
tto ditto top part in small				
quares and large bars	ditto	0	1	6
tto ditto circular on plan, no				
ars	ditto	0	1	9
tto ditto ditto with bars 3ft.				
part	ditto	0	2	0
tto ditto ditto top part in				
mall squares and large bars	ditto	0	2	9
a. angle bars extra	per foot run	0	0	5
n. ditto	ditto	0	0	6
n. ditto	ditto	0	0	7
a. ditto	ditto	0	0	8
a. beaded or moulded stops				
for glass to 2in., bradded in	ditto	0	0	1½
n. ditto	ditto	0	0	1¾
in. ditto	ditto	0	0	2
a ditto	ditto	0	0	2
ld for screws and brass caps	ditto	0	0	1½
tto brass ditto ditto	ditto	0	0	2
a. moulded bars to segment				
heads	ditto	0	1	0
in. ditto	ditto	0	1	1
in. ditto	ditto	0	1	2
a. ditto	ditto	0	1	3
ads of ditto housed and				
screwed	each	0	0	6
a. moulded bars to semi-heads	per foot run	0	1	3
in. ditto	ditto	0	1	4
in. ditto	ditto	0	1	5
r ditto	ditto	0	1	6
ads of ditto housed and screwed	each	0	0	6
ds of moulded stops for glass to segment				
spandrel pieces to 2in.	ditto	0	1	3
itto ditto 2½in.	ditto	0	1	4
itto ditto 2¾in.	ditto	0	1	5
itto ditto 3in.	ditto	0	1	6
ds of moulded stops for glass to semi-				
spandrel pieces to 2in.	ditto	0	1	6
itto ditto 2½in.	ditto	0	1	7
itto ditto 2¾in.	ditto	0	1	8
itto ditto 3in.	ditto	0	1	10

uadrant corners charge at time, ordinary quick sweep, and allow the joints with straight.

STALL BOARDS.

		£	s.	d.
2in. by 6in. sunk, rebated, and beaded	per foot run	0	0	6
Ditto ditto moulded	ditto	0	0	7
2in. by 7in. ditto	ditto	0	0	7
Ditto ditto ditto	ditto	0	0	8
2½in. by 7in. ditto	ditto	0	0	8
Ditto ditto ditto	ditto	0	0	9
2½in. by 8in. ditto	ditto	0	0	9
Ditto ditto ditto	ditto	0	0	10
2½in. by 9in. ditto	ditto	0	0	11
Ditto ditto ditto	ditto	0	1	0
3in. by 9in. ditto	ditto	0	1	0
Ditto ditto ditto	ditto	0	1	1
Ends framed	each	0	0	6
Mitres	ditto	0	0	4
Joint screws and fixing	ditto	0	1	0
Rounded corners	ditto	0	0	4
(Quadrant corners price at three times straight per foot, and the joints extra, and if very short, at five or six times straight, adding the joints.)				

JAMB LININGS.

1in. single-rebated and grooved, for plastering	per foot super.	0	0	6
Ditto glued up and cross-tongued	ditto	0	0	7
Add ditto for beaded	ditto	0	0	0½
Ditto ditto double-rebated	ditto	0	0	1
Ditto ditto segment-headed	ditto	0	0	4
Ditto ditto semi-ditto	ditto	0	0	8
Ditto ditto elliptic or Gothic headed	ditto	0	0	10
1¼in. single-rebated and grooved, for plastering	ditto	0	0	6½
Add ditto cross-tongued	ditto	0	0	7½
Ditto ditto beaded	ditto	0	0	0½
Ditto ditto double-rebated	ditto	0	0	1
Ditto ditto segment-headed	ditto	0	0	4½
Ditto ditto semi-ditto	ditto	0	0	9
Ditto ditto elliptic or Gothic-headed	ditto	0	0	11
1¾in. single-rebated and grooved for plastering	ditto	0	0	7½
Add ditto cross-tongued	ditto	0	0	1
Ditto ditto beaded	ditto	0	0	0½
Ditto ditto double-rebated	ditto	0	0	1
Ditto ditto segment-headed	ditto	0	0	4½
Ditto ditto semi ditto	ditto	0	0	9
Ditto ditto elliptic or Gothic-headed	ditto	0	0	11
2in. single-rebated and grooved.	ditto	0	0	8
Add ditto cross-tongued	ditto	0	0	1
Ditto ditto beaded	ditto	0	0	0½
Ditto ditto double rebated	ditto	0	0	1
Ditto ditto segment-headed	ditto	0	0	4½
Ditto ditto semi ditto	ditto	0	0	9
Ditto ditto elliptic or Gothic-headed	ditto	0	0	11
1½in. square-framed jambs and head, five panels the set, double-rebated	ditto	0	0	8
Add ditto bead butt	ditto	0	0	9
Ditto ditto ditto flush	ditto	0	0	10
Ditto ditto moulded	ditto	0	0	9
Ditto ditto ditto bolection	ditto	0	0	10
Ditto ditto linen panels	ditto	0	1	4
Ditto ditto ordinary raised panels and moulded	ditto	0	1	4
Ditto ditto stop chamfered and plain stops	ditto	0	1	0
1½in. square framed jambs and head, as before	ditto	0	0	9
Add ditto bead butt	ditto	0	0	10
Ditto ditto ditto flush	ditto	0	0	11
Ditto ditto moulded	ditto	0	0	10
Ditto ditto ditto bolection	ditto	0	0	11
Ditto ditto linen panels	ditto	0	1	3
Ditto ditto ordinary raised panels and moulded	ditto	0	1	3
Ditto ditto stop chamfered and plain stops	ditto	0	1	1
1¾in. square jambs and head	ditto	0	0	10
Ditto ditto bead butt	ditto	0	0	11
Ditto ditto ditto flush	ditto	0	1	0
Ditto ditto ditto moulded	ditto	0	0	11
Ditto ditto ditto ditto bolection	ditto	0	1	0
Ditto ditto linen panels	ditto	0	1	4
Ditto ditto ordinary raised panels and moulded	ditto	0	1	4
Ditto ditto stop chamfered and plain stops	ditto	0	1	2
2in. square, framed, &c.	ditto	0	0	11
Add ditto bead butt	ditto	0	1	0
Ditto ditto ditto flush	ditto	0	1	1
Ditto ditto ditto moulded	ditto	0	1	0
Ditto ditto ditto ditto bolection	ditto	0	1	1
Ditto ditto linen panels	ditto	0	1	5
Ditto ditto ordinary raised panels and moulded	ditto	0	1	5
Ditto ditto stop chamfered and plain stops	ditto	0	1	3
For plain sunk beads in middle rails		0	0	6
Ditto for three reeds		0	0	9
Add for moulded stops	each	0	0	2
Add for ends of linen panels carved	each end	0	2	0
(Dovetailed blockings are included in the above prices for fixing jamb linings.)				
PITCH PINE jamb linings may be priced at 25 per cent. on the above prices.				

On Thursday in last week a new Sailors' Mission Church and Institute at Cardiff was opened by Lady Lewis. The structure, which is situated just inside the dock gates in Bute-crescent, has been erected at a cost of £6,000 by Mr. James Allen, from plans prepared by Mr. E. W. M. Corbett.

Building Intelligence.

MAIDSTONE.—On Wednesday week the Institute erected in Marsham-street by the Dowager Lady Howard de Walden, at a cost of at least £8,000, was formally declared open by the Archdeacon of Maidstone. The building has been erected on the site of a small tenement and adjoining houses, almost opposite to the West Kent General Hospital. The institute is in the Queen Anne style, and has been built by Mr. James Clements, of Maidstone, from plans by Mr. Arthur Thompson, of Leadenhall Buildings, E.C. It is of red brick, with Bath stone facings. It contains about thirty rooms, including fifteen bedrooms, lady cook's room, matron's room, laundry, stores and scullery, all of which are about 25 feet by 20 feet in dimensions, lecture hall 42 feet by 25 feet, dining-room 42 feet by 25 feet, two class-rooms 15 feet by 25 feet, kitchen 30 by 20 feet, and also baths, lavatories, &c. The building is heated throughout by hot-water pipes. The woodwork consists of varnished pitch pine, and the outer walls are all built hollow.

MAIDWELL.—After restoration, Maidwell Parish Church was reopened on Tuesday week, and a new chancel was consecrated by the Bishop of Peterborough. The old chancel was pulled down in 1791, and the altar has since stood at the end of the present nave, with a monument immediately behind it. Designs for the restoration were prepared by Messrs. St. Aubyn, Son, and Wadling, architects, Lamb Buildings, Temple, London; and the contractor was Mr. S. Grist, of Bierton, Aylesbury. The whole of the present chancel is new, and is partly built on old foundations. The walls are of local stone, to correspond with the old building, and the dressings are of Weldon stone for the exterior and Bath for the interior. The altar-table and sedilia are of oak, from a design by the architects. The whole of the fittings of the chancel are of wainscot oak, and the fronts of the prayer-desks and choir-stalls are filled in with tracery. The nave roof is new and of pitch-pine, with wrought moulded plates and circular ribs, filled in with curved wind-braces. The tower arch has been opened out to the nave and is enclosed by an oak screen, the upper parts of which are filled in with lead glazing. The nave is fitted up partly with the old oak seats, and the remainder is of new pitch-pine seats, the floors underneath being of wood blocks. The pulpit has been restored, and has a new moulded Bath stone base and Portland stone steps.

WIGAN.—The fine Italian Church of St. John, Wigan, built about the year 1820, has been embellished by the erection of new altar rails of marble and alabaster, and the sanctuary has been also enlarged. The work was placed in the hands of Mr. C. Hadfield, architect, of Sheffield, from whose designs the whole has been carried out. Mr. Preston is the contractor, of Wigan. The rails are of bold design, and follow the architectural lines of the chief features of the church, being straight in front but curved at the sides, and upwards of fifty-two feet in length. The balustraded portion is composed of light coloured alabaster of the finest quality, relieved by panels of Seravuzza marble. The base and broad capping of the balustrade are formed of richly tinted and veined rouge griotte, while the step and riser on which they stand is dove marble.

A commission is about to be issued to consider and report upon the expediency of a union of St. Dunstan-in-the-East and All Hallows, Barking. The latter is one of the very few remaining churches in the City containing Norman and Early English work, and the former church is one of Wren's works, and is widely known by its picturesque open lantern-work spire.

Major-General E. Phipps Carey, R.E., attended at the Birkdale Town Hall on Tuesday, to inquire into the application of the Birkdale Local Board for power to borrow £18,960 for works of sewage disposal, surface drainage, and street improvement. There was opposition of an extraordinary character, the Corporation of Southport, the Southport Company House Proprietors' Association, numerous hotel and other companies, and private property owners in Birkdale and Southport opposing the application so far as the disposal of the sewage went. It was stated that the scheme was prepared by the late Sir Joseph Bazalgette, and after hearing evidence in support of the application, the inspector adjourned the inquiry till December 14.

Engineering Notes.

Avonmouth.—The first sod of an extension of the dock was formally cut last week. The extension is to be 700ft. by 130ft. The walls will be of cement concrete, faced with masonry, with a coping of granite. Foundations will be put in for coaling tips, and the material excavated will be used for making up the low-lying ground between the existing dock and the ground let to the Petroleum Companies. The extension of the dock, which is being carried out from the plans of Mr. J. M. McCurrick, the docks engineer, will cost £60,000.—The Bristol Docks Committee also inspected on Monday the transit shed which has been erected on the west side of the dock. The structure is now ready for use. This is the third shed which has been constructed here, and is in length 321ft., the width being 101ft. The width of the lower portion is reduced by the line of rails at the front and back to admit of grain being delivered directly into trucks by means of shoots from the upper floor. The side and end walls of the lower portion of the shed are constructed of brickwork, and the sides of the upper portion of the shed are supported by cast-iron columns and continuous wrought-iron girders. The upper ends of the shed are of framed timber, and the sides, ends, and roof of the upper portion of the shed are covered with corrugated iron. The roof is of two spans of over 50ft. width, the principals being of wrought iron. The contractor, Mr. A. Krauss, of Russell Town, St. George, Bristol, carried out the whole of the work except the corrugated iron, which was supplied by Messrs. J. Lysaght and Co., Limited. Messrs. Milburn, of Stalybridge, furnished the cast-iron columns. The cost of the shed has been about £11,000.

Lancing.—The sea has been steadily encroaching on the frontage of the parish of Lancing, Sussex, and has frequently made gaps in the road between Worthing and Lancing. The gap now extends for a distance of about 400ft., and measures from 10ft. to 15ft. deep, and the frontage of about 1,500 yards has no protection against the encroachment. After years of discussion, a committee has been formed, partly of members of the Worthing town council, and partly of some of the inhabitants of Lancing and others interested; and the committee have instructed Messrs. R. B. Grantham and Son, of London, to prepare plans and specifications for the construction of a number of groynes and other works for the protection of the frontage. The groynes are to be laid out on the principle which has been adopted with great success on that coast between Lancing and Shoreham and Middleton parish, near Bognor.

The Ribble Works.—Mr. A. F. Fowler, the resident engineer, has reported to the town council of Preston on the desirability of protecting the river Ribble banks on the south side for about two miles below the Preston Dock. The object is to protect the surface of the soil from the abrading action of currents and the wash of steamers, and to prevent the slipping down of the banks into the dredged channel, consequent upon the deepening of the same. The abrasion of the banks during the last twelve months has been very marked. It encourages deposit, and, judging from the experience gained in dredging through this portion of the channel, prevents the attainment of the 1883 depth to a greater bottom width than 150ft., because, in order to preserve a greater width, the sides would have to stand at a steeper slope than they do at present. The engineer now recommends that the pitching of the slopes be proceeded with according to his plan, which shows the banks to be pitched with stone rubble to a slope of 2 to 1, and the base of the pitching to be protected with 12in. square piles, 20ft. in length, driven 9ft. apart, the spaces to be filled up with old sleepers.

At the last meeting of the City Court of Common Council, it was resolved to lend to the forthcoming Victorian Exhibition in Regent-street, portraits, busts, and works of art belonging to the Corporation, and illustrative of the fifty years of her Majesty's reign.

At the Wakefield police-court on Friday Edward Clarkson Tattershall, architect, was charged on remand with threatening to kill his father, a master plasterer. Defendant having promised to mend his ways and sign the pledge, the case was adjourned or three months.

ARCHITECTURAL & ARCHÆOLOGICAL SOCIETIES.

Bolton Master Builders' Association.—The annual meeting of the members of this association was held last week. Mr. Wm. Townson was appointed chairman, in the unavoidable absence of Mr. Wm. Bryce, president of the association. The secretary (Mr. Fred. W. Briscoe) read the annual report, which stated that the past year had been one in which there had been an increased amount of trade, but at prices still too low. A number of questions had arisen between the employers and operatives with regard to alteration of rules and wages. After a number of meetings and interviews it was agreed that the wages of joiners and carpenters be increased from 8d. to 8½d. per hour, and the rules (particularly in respect to overtime) were amended and signed by the employers and operatives. In October last a fresh question was raised on the overtime rule. The wages and timber price list had also been revised, the new list coming in force on October 1 last. In April last notice was received from the operative bricklayers for an increase of wages from 8½d. to 9d. per hour, and deputations were received thereon. Though, according to rule, three months' notice should be given, to expire on May 1, for any alteration of rules, only fourteen days' notice was given. The operatives refused to abide by the rules, and there are therefore no official rules as between employers and employed in this trade. The labourers' wages have been increased from 5½d. to 6½d. per hour, and those of plasterers from 8d. to 9d., and those of plumbers from 8d. to 8½d., while a penny increase has been given to timber surveyors. The balance-sheet and annual report were adopted. The following officers were appointed for the ensuing year: President, Mr. William Bryce; vice-president, Mr. Councillor Cunliffe; deputy-president, Mr. Wm. Townson; treasurer, Mr. J. H. Marsden; auditor, Mr. Jas. Gregson.

Edinburgh Architectural Association.—The opening meeting of the session of this association was held on Thursday night in last week, at 42, George-street, Mr. John Kinross, president, in the chair. The president, in his opening address, stated that the membership now numbered about 300. He explained the steps which had been taken for the establishment of a school of design to give some practical instruction in the principles and history of applied art. Circulars had been issued asking subscriptions to raise a fund of £2,000 to defray the expenses of the classes for five years from the start, and during which time the practical utility of the classes would be shown and time given to establish them on a permanent basis. Taking architecture, the course of study might be the civil and ecclesiastical and military architecture, divided into lectures on the history and development of the various branches and the external influences affecting them. The course of study prescribed in architecture was to apply to the other subjects with slight variation in detail. The formation of a museum and library of decorative and applied art would also be one of the objects to be kept in view. A gratifying response was made to the appeal for subscriptions, £1,385 having been received by 30th April last. Satisfactory assurances had also been received by the committee that the scheme was being favourably entertained by the Board of Manufactures, and the necessary accommodation at the Royal Institution had been set apart for the association and for the classes. The developing and carrying into practice of the committee's broad scheme of education must, of course, take some little time. If their scheme bore fruit, the large amount of money sent South to pay for the highest class of workmanship, which could only be got there, would then remain in Scotland. Professor Baldwin Brown moved a vote of thanks to the President, along with an addendum to the effect that the association had heard with great pleasure the report as to the progress of the proposed school of design, and viewed with the heartiest approval the proceedings that had already been taken. Mr. H. F. Kerr, architect, seconded the motion, which was unanimously adopted.

Glasgow Archæological Society. — The thirty-fifth annual meeting of the Glasgow Archæological Society was held on Friday night, Mr. John Honeyman, F.R.I.B.A., president, in the chair. The annual report detailed the work of the society during the year. After its adoption, and the election of Professor Ferguson, of the Chemical Chair of Glasgow University, president, the other office-bearers were elected Mr. Honeyman then delivered a short retiring address.

Leeds and Yorkshire Architectural Society.—The sixteenth session of the Leeds and Yorkshire Architectural Society was opened at the Law Institute, Albion-place, Leeds, with an address by Mr. W. H. Thorp, F.R.I.B.A., who had been re-elected president. He proceeded to consider the question which had created a large amount of discussion and warmly-contested argument during the past year—namely, "Architecture: an Art or a Profession." He thought that impartial critic could not fail to admit that architecture had a two-fold aspect, and to exalt the one at the expense of the other was to inflict injury on both. Mr. G. B. Bulmer moved a vote of thanks to the president for his address. Mr. E. J. Dodgshun seconded the resolution which was adopted.

CHIPS.

The ceremony of laying the first stone in the works to be carried out in the front of Ramsgate at a cost of £60,000 took place on Monday. The work consist in the building of a front approach to the top cliffs, the construction of a military road across the inner harbour, and the widening of the approach to the London and Chatham Railway station, together with the building of a new Custom-house and harbour-master's house. The engineer is Mr. Valon, and the contractors are Messrs. Denne.

Mr. H. S. Marks's picture, "A Select Committee," a humorous study of a group of parrots shown at the last Royal Academy Exhibition, has been purchased by the Liverpool Corporation for the permanent collection of the Walker Art Gallery.

The town council of Tynemouth have adopted plans, prepared by the borough surveyor, for alterations to the town-hall, estimated to cost £3,000.

A new Wesleyan chapel at Buerton was opened on Tuesday week. It is Gothic in style, seats 2 persons, and cost £800. Mr. John Matthews, Nantwich, is the architect.

A new Wesleyan chapel at Highgate, near Heden Bridge, in the West Riding, was opened Sunday week. It is seated for 200 people, and the rear are schools for 160 children. Mr. W. Cockcroft was the architect, and the works have been carried out by local contractors at a cost £700.

Powers for the construction of a new dock on the Cardiff East Flats are to be sought in the ensuing session of Parliament. This new dock is to be built, at an estimated cost of from £700,000 £1,000,000, adjoining and leading into the Roath Dock, to which in area it will be almost similar. The dock will be constructed on the foreshore, the ground adjacent being in process of reclamation. It will be at right angles to the Roath Dock, and will be in direct connection with the lines of railway serving the Bute Docks.

At Marsworth, near Aylesbury, on Thursday last week, a window was dedicated, which has been filled with stained glass by the parishioners and others, as a memorial of the labours of the present vicar, the Rev. F. W. Ragg, who, with his own hands, has carried out, during the past ten years, the restoration of the battlements and buttresses, roofs, and windows of the church, being his own architect and mason.

The Marquis of Bute has presented to the Corporation of Cardiff a loving cup. It stands 32in. high, is in silver gilt, with gold shields, and profusely jewelled with diamonds, sapphires, amethysts, rubies, emeralds, carbuncles, and aqua-marine. On the top is a figure representing Cardiff, wearing a mural crown in diamonds, the face, hands, and feet enamelled in life colours—the right foot resting on a block of coal, and the left hand grasping a rudder. At her feet is a figure of Sabrina, the nymph of the Severn. The cup was designed and modelled by Mr. W. Birnie Rhind, of Edinburgh, and the work was executed by James Crichton and Co., of George-street, Edinburgh. The cost was £2,000.

Memorial stones of a new Presbyterian Church, Spellow-lane, Walton, near Liverpool, were laid on Saturday. The buildings consist of a church seating 400 people, school and classrooms and vestries. The plan of the church is cruciform, the nave being 57ft. by 36ft., and the transept 15ft. by 9ft. The ceiling is of octagon shape, and the pews of pitchpine. All the entrances will be paved with Edwards's Ruabon encaustic tiles. The exterior will be carried out in local grey brick. The style is Romanesque. The contractors have been Messrs. Haugh and Pilling, Watmough-street, and the architect is Mr. Richard Owens, Westminster Chambers, Liverpool. The total cost has been £1,800.

TO CORRESPONDENTS.

do not hold ourselves responsible for the opinions of correspondents. All communications should be wn up as briefly as possible, as there are many mants upon the space allotted to correspondents.]

s particularly requested that all drawings and all unications respecting illustrations or literary matter d be addressed to the EDITOR of the BUILDING , 332, Strand, W.C., and not to members of the by name. Delay is not unfrequently otherwise d. All drawings and other communications are at contributors' risks, and the Editor will not take to pay for, or be liable for, unsought contribu-

ques and Post-office Orders to be made payable to SSMORE EDWARDS.

TERMS OF SUBSCRIPTION.

e Pound per annum (post free) to any part of the d Kingdom; for Canada, Nova Scotia, and the United s, £1 6s. 0d. (or 6dols. 30c. gold). To France or um, £1 6s. 0d. (or 33fr. 30c.) To India (viâ Brindisi), s. 4d. To any of the Australian Colonies or New nd, to the Cape, the West Indies, or Natal, £1 6s. 0d.

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e charge for Competition and Contract Advertise-s, Public Companies, and all official advertisements per line of Eight words, the first line counting as the minimum charge being 5s. for four lines.
e charge for Auctions, Land Sales, and Miscellaneous Trade Advertisements (except Situation advertise-s) is 6d. per line of eight words (the first line ting as two), the minimum charge being 4s. 6d. for ords. Special terms for series of more than six tions can be ascertained on application to the Pub-r.
ont Page Advertisements 2s. per line, and Paragraph rtisements 1s. per line. No front page or paragraph rtisement inserted for less than 5s.

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e charge for advertisements for "Situations Vacant" Situations Wanted" is ONE SHILLING for TWENTY-WORDS, and SIXPENCE for every eight words after. *Situation Advertisements must be prepaid.*
lvertisements for the current week must reach the not later than 3 p.m. on Thursday. Front-page rtisements and alterations in serial advertisements reach the office by Tuesday Morning to secure inser-

NOTICE.

ıd volumes should be ordered early (price Twelve illings each), as only a limited number are done . A few bound volumes of Vols. XL., XLI., XLVI., LIX., L., LI., LIII., LIV., LVIII., LIX., and LX. ıy still be had, price Twelve Shillings; all the other und volumes are out of print. Most of the back num-rs of former volumes are, however, to be had singly. bscribers requiring any back numbers to complete lume just ended should order at once, as many of em soon run out of print.

EIVED.—J. W. and Son.—C. and Co.—M. and Co.—T.

SMYTHSON. (The drawing by Mr. Claude de Neu-lle, of Magdalen Tower, Oxford, now on view at Mr. endoza's gallery, will appear in our pages after the ose of that exhibition.)

"BUILDING NEWS" DESIGNING CLUB.

SECOND LIST OF SUBJECTS.

A small house for an artist, with a spacious studio, ving a large window facing the north. Cost of build-g to be about £800. Accommodation to comprise a od living room, measuring somewhere about 18ft. by ft., a small square-shaped hall, and staircase 3ft. 6in. ide. Kitchen and offices. Four bedrooms, bath-om, and w.c. on first floor, and the studio on the top or, with a small property or box-room leading out of . The upper flight of stairs may be 3ft. wide, and it to be remembered that pictures have to be brought wn from the painting-room. Site to be a suburban ıe, 35ft. wide and 110ft. deep, one of a row. Frontage ıe 12ft. from fence line. Style suitable for cement-ced walls, with stone dressings to the front and side indows. Scale 8ft. to the inch. Three elevations, section, and 3 plans with sketch.

AWINGS RECEIVED.—"Nil Nisi Bonum," "La Cigale," no name and address, "Old Postage Stamp," Jamrach," "Norman," "Yorkshire Tradition," Mars," "Pastime," "Cottonopolitan," "Unsate ortior," "Western," "Sector," "Sanitas."

Correspondence.

"ROGERS v. JAMES."

To the Editor of the BUILDING NEWS.

SIR,—The decision of the Judges of the Appeal urt in the cause "Rogers v. James," decided the 17th inst., and reported in the *Times* of following day, is, I think, of sufficient erest to the architectural profession to bear ne comment.

The plaintiff, an architect, sued the defendant · £120, balance of professional fees, the major rtion for designing and carrying out furniture d decorative work for which he charged 10 per it. Upon this claim a special jury at Maid-ne by their verdict awarded £58. The de-ıdant, James, set up a counter-claim of £1,000 for negligence on the part of the plaintiff, and the verdict of the jury awarded him £90.

It was proved on the trial that the contractor, taking advantage of the absence of the architect, who paid daily visits at the time, had omitted some portions of the concrete under the footings, and this was not discovered until too late to insert it. The subsoil is a hard, compact gravel, and that concrete is not necessary for the stability of the structure is proved by the fact that the walls, having been erected three years, do not show any sign of settlement. The architect having this fact before him, considered that the justice of the case would be met by deducting from the final certificate a sum equal to the cost of underpinning the walls in cement where it might be necessary. This he was empowered to do under the clause of the contract providing that "the decision of the architect with respect to the amount, state, and condition of the works actually executed, and also in respect of any and every question that may arise concerning the construction of the present contract, or the plans and specifications, or in anywise relating thereto, shall be final and without appeal."

That the judgment of the architect was correct has again been proved by the fact that the defendant, having put into his pocket the amount allowed for underpinning, has not thought it necessary to expend it.

But when the architect sues for the payment for his services, then comes up the counterclaim, and it is argued that he is responsible for the fraudulent acts of the builder (who is a bankrupt), although the final certificate has been accepted by both parties, and ratified by the Court of Queen's Bench.

The lessons to be learned by this case are:—

1. In the absence of a clerk of the works, an architect must be on the works during the entire hours of labour, thus preventing him from carrying out more than one work at a time.

2. The architect is responsible for any deficient work put in and covered up during his absence.

3. The client can claim from the builder the value of any work omitted, and having obtained it, he can again claim it from the architect. (In this case the amount claimed by the builder was over £700, and the amount of the final certificate was £160, the original contract amount being £1,900.)

The building in question is a house called "Ellesmere," erected on Sundridge-avenue, Bromley, Kent.

Bromley, Kent. FREDK. ROGERS.

ROAD-MAKING MATERIALS.

SIR,—Statements have from time to time been made by quarry owners and others wishing to introduce or advocate various descriptions of stone in which they are interested, that their particular material resists a very much higher thrusting stress than other kinds, and that it is, therefore, as good as, or greatly superior to, others used for road-making purposes.

Now, our experience, as practical road-makers, leads us to quite an opposite conclusion, and we are convinced that, not only are the figures quoted in support of the above argument in many cases incorrect, but the deduction drawn from them is fallacious.

In order to prove this to others, we prepared specimens of three different kinds of stone—viz.:—

1. Common black flint, taken from a railway cutting through chalk near Grays, in Essex.

RESULTS OF EXPERIMENTS.

To ascertain the resistance to Thrusting Stress of various specimens of road-making material, by David Kirkaldy and Son, 99, Southwark-street, S.E., in 1890 and 1891, for Messrs. John Mowlem and Co.
(Blocks bedded between pieces of Pine ⅛in. thick. All carefully ground.)

Test No.	Name of Quarry and marked.	Dimensions.	Base Area.	Crushed, steelyard dropped.		
				Stress.	Per sq. in.	Per sq. ft.
Z		Inches.	Sq. In.	lbs.	lbs.	Tons.
2,522	Flint from Chalk Beds.....	4·80 2·30 × 2·80	6·44	248,200	38,540	2,478·5
2,523	Ditto	4·80 2·30 × 2·80	6·44	168,480	26,161	1,682·4
			Mean	208,340	32,350	2,080·4
Y			6·66	213,860	32,111	2,065·0
2,634	2 "Silica" (Cherbourg)	4·37 2·58 × 2·58	6·66	208,640	31,327	2,014·6
2,633	2	4·37 2·58 × 2·58	Mean	211,250	31,719	2,039·8
2,636	1 Guernsey	4·37 2·56 × 2·56	6·55	197,320	30,125	1,937·3
2,635	1	4·37 2·56 × 2·56	6·55	176,490	26,945	1,732·8
			Mean	186,905	28,535	1,835·0

2. Cherbourg stone, which is a quartzite, said to contain 93 per cent. of silica.

3. An ordinary specimen of good Guernsey granite.

These we submitted to Messrs. D. Kirkaldy and Son, the eminent testing engineers, for testing their resistance to crushing stress, and we append the results for your information.

You will see that the common black flint shows the highest resistance; Cherbourg quartzite (which is all but pure silica) comes next, and Guernsey granite occupies the third place.

Of course, the merest tyro in road-making knows there is not the slightest comparison between the durability of a flint road and that of one made with Guernsey granite, and it is, therefore, self-evident that the test of resistance to crushing stress is no indication of the wearing qualities of a stone for macadamising purposes; because, when thus tested, the admittedly worst material gave the highest and the generally-considered best material the lowest results.

As we have observed that a great many road surveyors and members of local boards attach great value to a high resistance to crushing stress, and in many cases choose a stone solely on account of its possessing this property, we have taken the liberty of sending you these remarks and figures, and trust they will be interesting to you. We think they show clearly that other qualities besides the one in question must be looked for, and that *toughness* is quite as essential as high resistance to crushing stress, the latter being generally accompanied by brittleness, leading to rapid pulverisation under the practical test of traffic.

Should anyone wish to see Messrs. D. Kirkaldy and Son's original test certificates, we shall have much pleasure in showing them. They are always at our chief office for inspection.—We are, &c., JOHN MOWLEM AND CO.

REMOVAL OF SNOW FROM TOWN STREETS.

SIR,—In reference to your interesting article in the BUILDING NEWS of the 30th ult., on the above important subject, allow me to say that I have designed and patented a portable apparatus or furnace (the drawings and particulars of which I should be glad, with your permission, to submit for your inspection), which can be taken to the roads or other places where snow has fallen, and there used so as to rapidly melt and destroy the snow as soon as it falls, and thus avoid the labour and expense of all cartage, and also the difficulty of obtaining at a short notice a sufficient number of horses and carts, and shoots, or other means of deposit—an almost insurmountable difficulty in towns. These results can be obtained at one-fifth of the cost of any other method hitherto tried. This is not surprising when the fact is taken into consideration that the principal item of cost in the removal of snow is the carting away, which my apparatus entirely saves, the apparatus being taken to the snow instead of the snow to the apparatus or to a shoot. In other words, the very desirable object suggested in your article—viz, melting the snow *in situ*—is practically obtained.

Your article gives some valuable data and particulars of the enormous cost involved and the difficulties encountered in the removal of snow from the streets of London and other towns.

Although I dare not venture within the limits of this letter to contrast in detail the cost, labour, and time occupied in getting rid of the snow by the various means mentioned by you

with the cost and labour to obtain the same results by the use of my furnaces as ascertained from actual experiment, I should like to be permitted to briefly refer to some of the principal items quoted in your article.

You show that in the parish of St. George, Hanover-square, it cost £1,000 to remove 4,500 cubic yards of snow. My apparatus would destroy this quantity for £75.

It is estimated that to remove 400,000 cubic yards of snow in ten days 4,000 horses and carts would be required daily, and the cost would be £35,000. A sufficient number of my furnaces would accomplish this work at a cost within £7,000.

In the experiment made in melting snow by steam, 204 cubic yards were destroyed in five days. One of my furnaces would melt more than this quantity in one day, at one-fifth the cost of the steam process.

The experiment with gas does not appear to have been more successful: 285 cubic yards were destroyed in 32 hours. One of my furnaces would have destroyed this quantity in one-fourth of the time at much less cost.

My snow destructors are simple and inexpensive, and the results which can be obtained from them go far towards the solution of a very important and difficult problem which has for a long time past commanded the serious attention of municipal and other authorities.

Trusting that you will insert this explanatory letter in your next issue, and that my snow-destructor, as described above, may be found by your subscribers to satisfy the requirements so admirably set forth in your issue of the 30th ult., —I am, &c., P. E. Murphy, C.E.

Elgin House, South Tottenham, Nov. 21.

CHIPS.

The stationers' premises belonging to Mr. W. S. Cowell in the Butter Market, Ipswich, are about to be rebuilt at a cost of £5,500. Mr. F. Dupont, of Colchester, is the contractor.

During the reconstruction of the woodwork in the parish church of Prestonpans, two pieces of well carved oak panels were discovered; they represent shields of the Hamilton family, and are dated 1604.

A public reading-room is in course of erection at Lymington. Mr. Gale, of that town, is the builder, and the cost will be £500.

Holman Hunt's picture, "The Triumph of the Innocents," recently purchased for the permanent collection at Liverpool by private subscription, has been placed in the Rossetti room of the Walker Art Gallery in that city, and is now open to public inspection.

A new Wesleyan mission chapel in Church-street, Hunslet, Leeds, was formally opened on Saturday. The main room is 31ft. by 54ft., and is seated for 350 persons; while on either side are classrooms of various sizes, seven in all, and a kitchen and apparatus room. The walls are of bricks, with stone dressings, and the fittings of pitch pine. Mr. G. F. Danby, of Leeds, was the architect, and Mr. B. Hutchinson and Mr. Joseph James carried out the work at a cost of £1,450.

St. Bartholomew's parish church, Porthleven, was reopened on Thursday in last week after restoration, carried out at a cost of nearly £2,000. The pews have been replaced by chairs, the floors relieved with wooden blocks and encaustic tiles for passages, and new organ-chamber and vestry erected. Mr. G. H. Fellowes-Prynne, of London and Plymouth, was the architect, and the works have been carried out under the supervision of Mr. Thomas Webber.

The corporation of Hythe, Kent, having applied to the Local Government Board for sanction to borrow £3,184 in order to carry out the Marine Parade improvement scheme, an inquiry was held at the town-hall on Friday morning before Colonel C. H. Luard, R.E.

On Saturday a new board-school was opened in Southesk-street, Montrose. It is provided with fourteen class-rooms on two floors; one of the rooms, to be used for drawing or cookery classes, being in a central tower at the top of the building. The accommodation is 760, and the cost has been over £6,400.

At the last Cambridge Assizes, Francis Johnson, a builder, of Fordham, Cambs, was convicted of various offences under the Bankruptcy Acts, including falsification of ledgers and cash-books, and concealment of a debt of £28 10s., and three moneys. He was sentenced to four months' imprisonment with hard labour.

The annual dinner of the Society of Engineers will be held at the Holborn Restaurant on Wednesday, the 16th December.

Intercommunication.

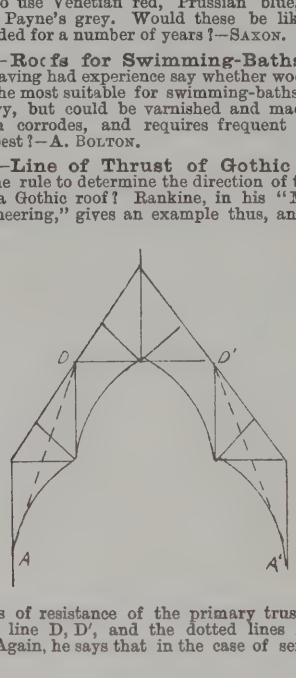
QUESTIONS.

[10665.]—**Diseases of Animals in Relation to Meat Supply.**—Would some reader kindly name the best book or books on the above subject, suitable for one preparing for the Sanitary Institute Examination for Inspectors of Nuisances?—C. L. H.

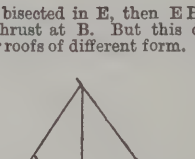
[10666.]—**Permanent Colours.**—Information as to most suitable water colours to use for a drainage plan, to be framed and glazed and hung in a moderately strong light, is desired. Colours to be red, blue, green, and grey. Proposed to use Venetian red, Prussian blue, emerald green, and Payne's grey. Would these be likely to remain unfaded for a number of years?—Saxon.

[10667.]—**Roofs for Swimming-Baths.**—Will someone having had experience say whether wood or iron roofs are the most suitable for swimming-baths? Wood looks heavy, but could be varnished and made to look well. Iron corrodes, and requires frequent painting. Which is best?—A. Bolton.

[10668.]—**Line of Thrust of Gothic Roof.**—What is the rule to determine the direction of the line of thrust of a Gothic roof? Rankine, in his "Manual of Civil Engineering," gives an example thus, and says:—



"The lines of resistance of the primary truss are the horizontal line D, D', and the dotted lines A D and A' D'." Again, he says that in the case of semicircular



ribs, if A D be bisected in E, then E B would be the direction of the thrust at B. But this does not seem to help us much for roofs of different form. I want to know

the direction of line of thrust for roof, thus; and should be also obliged to any reader who would kindly give me the rule applicable to all roofs, or the name of some work in which I shall find it?—X.

REPLIES.

[10663.]—**Timber.**—"Woodenhead's" question is explained in Hurst's edition of "Tredgold's Carpentry," p. 407, where it is stated that red pine (Pinus rubra) is sometimes called by botanist's Pinus resinosa. The term Pinus resinosa in "Hurst's Tredgold" is applied to pitch pine instead of the term "Pinus rigida," given to it by some botanists, whom Mr. Laslett has followed in his work on "Timber." The authority chiefly followed by Hurst and Tredgold is, I believe, Michaux's "North American Silva," a work unequalled for accuracy by any produced by recent writers.—J. S.

An inquest on the body of Mr. William Male, plumber and contractor, and a member of the Birkenhead town council, who died, aged 54, on the 17th inst., at his residence, 14, Shrewsbury-road, Birkenhead, took place on Friday. The evidence showed that deceased had been ill for some time, and after seeing a football match on the Saturday afternoon, took to his bed and died on the following Monday. A verdict of death from natural causes was returned.

Legal.

ARCHITECTS' AUTHORITY.—IV.

In regard to certifying for payment, it is m essential that the architect should observe v carefully and cautiously the clauses and con tions of the contract, which is, as far as he concerned, the charter of his authority as ag for his client. He stands, in fact, by virtue his position, between the owner and the build and by any breach of the contract he may f that he has made himself legally liable to one the other. As to his client, his duty in certi ing is to keep strictly within the limits of authority, for otherwise his certificate may bad, and the owner not liable to pay, while h open to an action for negligence if the client paid relying upon the certificate as to val But as to progress certificates for interim p ments to the builder as the works go on, unl the contract expressly provides for and ma the architect's valuation binding upon the part it is not so, and the client is not bound that value. In this respect, indeed, builder's legal position is not very sa factory, although in practice he does very w He is obliged to get a progress certificate fr the architect before he can draw any money account under the contract; but this certific will not usually bind the employer as to the va of the work done, while it may be upset altoget by the architect himself in the final certific Nor is there any way by which the builder make either the owner or the architect liable the latter does not certify enough according the value of the work he has done under contract. In short, as to these progress cert cates they are, as a rule, merely formal conditi precedent to payments on account by the employ having no binding force upon any one, liable to be reopened and gone into all over ag at the end of the job. It is always importan keep distinct in the mind the legal position of architect as the agent of his client acting un the limited authority contained in the writ contract, and the same power as an arbitra between owner and builder, in which la capacity his powers are larger, and proceed u a different principle.

Fred. Wetherfield, Solicitor
1, Gresham Buildings, Guildhall, E.C.

Note.—All questions for reply in this colu must be headed "Building News," and m reach my offices, as above, by *Tuesday* morn to insure answer same week.

D. A. K.—Builder and Surveyor.—Profit Partnerships.—1. The surveyor arranges to do estimating, drawing, &c., for the builder for a percen of the builder's profits, and a nominal salary. builder, a practical man, wishes to take, as part of remuneration, a fixed sum per hour for his work, thi be treated as a trade expense, and a payment be ascertaining the profits. I should say he cannot do without an express agreement to that effect. 2. the arrangement as it stands, there would be a part ship in law, and the surveyor would be liable for debts; but this may be provided against by a pr agreement, which it would be advisable to enter into.

Local Board—.Powers of—Street-Making.—suming that the road is a private one, as it would ap to be, because it can't be got at without committi trespass in law, the local authority has no powe compel the owners and householders of property abut to construct the street to the satisfaction of the board. It is for the several owners to do the rep themselves, and if they care to leave the street in a state of repair, there is no remedy. Of course, i deposit of all sorts of rubbish, &c., a nuisance is cau then the local authority would have power to abate but that is a very different matter.

H. T. K.—Guardian.—Builder.—Parish Contra —1. A guardian of the poor is legally precluded f making any profit out of his position as such, and i contracts and carries out building work for the ps authorities, he forfeits his seat, and is subject to penal 2. An individual member of the board has no po outside the meetings of the board to order works done for the authority, without he is specially depute the board to do so, and I should say it would be altoge irregular for any officer of the board to appoint him agent of the authority for that purpose.

G. B. H.—Builder's Estimate—Mistake.—The take made in not carrying out the items from the Bi the Summary (on account, as it is stated, of the defau the surveyors in not including the particular work in summary), is one against which there will probabl no remedy against the building owner. All he woul concerned with would be the total, and it would be o moment to him how it was arrived at. If there claim against anyone, it would be against the surve for misleading; but as they are not bound to ma summary at all, and they do it simply for the conveni of the builders tendering, a claim against them woul my opinion, equally fail.

LEGAL INTELLIGENCE.

: School Board for London v. Johnson. he Queen's Bench on Saturday Mr. Justice an gave judgment in this case. The defendant, ohnson, of Wandsworth Common, was a r, who had done work for the London School upon three contracts in reference to as many s, and the present action was brought against recover sums amounting to £3,670 in all, in t of default in connection with the perform- f these contracts. The action came on for efore his Lordship in May last, when, after discussion, it was arranged that the dispute be referred to an arbitrator to be named by and who should report to him. He named Henry A. Hunt, surveyor, who, after having sittings, which extended over 24 days, made port, and after further consideration with the ator, his Lordship gave judgment on Saturday. ustice Denman said that the plaintiffs sued the dant to recover a large sum of money in re- of work done, or omitted to be done, by him years before the action was brought upon contracts in reference to three Board schools. lefendant had been paid upon the architect's cate, but it was contended that the London l Board were entitled to have damages, ithstanding the lapse of time that had taken , and the fact that the architect's certificate een given. His Lordship went through the tions, which provided, among other things, he contracts should be executed with the best rials and with skilful workmanship, and to the action of the architect. Further, that if n four months of the completion of the works defect arising from improper material or manship should be found, the contractor d make it good at his own cost. The certificate e architect, showing the final balance due to ontractor, should be conclusive evidence that vork had been completed, and that the balance payable; but without prejudice to the con- or being liable in a certain event. Then Clause 22, which provided that no final or ther certificate should relieve the contractor any fraud, default, or wilful deviation his contract; but that he should remain our years liable for such acts. The plaintiffs ed that there had been fraud, default, eviation from the contract, and that by reason is they had suffered loss and damage. When ase came on for trial he (Mr. Justice Denman) essed the opinion that to entitle the plaintiff to ver they must show that there had been some- in the nature of "scamping" work; and it arranged that, upon the report of the arbitrator, hould direct judgment, from which judgment e should be no appeal. The arbitrator was to rt whether the defendant had been guilty of d, default, or wilful deviation from his con- ; whether there had been "scamping" of the with a view to his own interest, or wilful ation from the contract with the same view. e the case was last before the Court, his Lord- said that he had seen Mr. Hunt, and he had no t of the correctness of the conclusions at which gentleman had arrived. He had found that defendant was not personally guilty of fraud, that to a certain extent a plumber was guilty in ng light lead in the gutters to the extent of t., and of the value of £5 5s. He reported that, rally, the work had been well done—notably, lead work, the joiners' work, the plasterers' k, and the brick and stone work; and that, ough there were serious failures in the drainage k of at least one school, he did not consider the work, as a whole, had been scamped. He referred to various deviations from the con- t that had taken place under certain circum- ces; and, in conclusion, he remarked that the cts that had manifested themselves in the dings could not have existed without the con- utory negligence of the School Board and its nts. His Lordship said that, even assuming that e was some blame to the defendant's foreman eference to work done and to deviation from contracts in reference to the drains, he thought Mr. Hunt was right in saying that it was not nded to put the money into the defendant's ket; but was due rather to the loose surveillance the foreman and clerks of work. Upon the le he (Mr. Justice Denman) had no hesitation iving judgment for the defendant, with costs n the higher scale, and also costs of two inter- itory applications that had been made.

Contractor's Appeal.—In the case of letcher v. the London and North-Western lway Company," the Court of Appeal, sisting of the Master of the Rolls and ds Justices Lopes and Kay, gave judgment Nov. 20 on the appeal of the plaintiff from order of Mr. Justice Wright, at Liverpool izes, non-suiting the plaintiff, who was seriously ured upon the defendants' line at Gorsimon ion, near Swansea, on the 6th January last. plaintiff was a sub-contractor to Messrs. Dixon Son, of Liverpool, and was engaged in removing oof when the accident happened to him. He claimed £500 damages for the breaking of his leg thoug'i being tripped up while crossing the railway at Gorsimon station, his case being that there had been negligence on the part of the company. Mr. Justice Wright non-suited plaintiff without hearing the evidence, hence the present application for a new trial. A new trial was ordered.

An Architect Charged with Obtaining Money by False Pretences. — Fred William Fryer, architect, who was acquitted of a charge of obtaining money by false pretences, was indicted at the Old Bailey on Tuesday for obtaining from James Cawthorne £100, with intent to defraud. Prosecutor was not in attendance, so the Recorder said he would postpone the trial till next sessions. Here the witnesses for the defendant raised an indignant protest, and one of them inquired if his expenses would be paid. He was going into Wales; and expense must necessarily be incurred in coming back to London.—The Recorder: Your expenses will not be paid if you are going on private business. —Witness: I am not going on business, my lord; I am a gentleman. (Laughter.)—The Recorder: That does not matter. If you are a gentleman that is no reason why you may not have private business to transact.—Witness: I am going on a visit.— Here the prosecutor walked into the Court, the counsel having left just previously. The Recorder said the case could not proceed in the absence of counsel, and he discharged the prisoner.

CHIPS.

The Bristol school board have adopted plans by Mr. W. V. Gough, of that city, for a group of schools to be built in Stillhouse-lane, near Bedminster Bridge. The buildings provide accommmodation for 300 infants and 300 boys and girls in a mixed school, and will provide a central room, 73ft. by 25ft., with a gallery at one end and classrooms on either side.

Mr. Francis F. Persse, of Sycamore Lodge, Loughrea, C.E., and A.R.I.B.A., has been appointed a Justice of the Peace for the county of Galway.

The Wakefield rural sanitary authority having adopted a scheme prepared by their engineer, Mr. Frank Massie, Assoc.M.Inst.C.E., of main drainage for the township of Lofthouse-with-Carlton, have applied to the Local Government Board for sanction to borrow the sum of £10,000, the estimated cost of the works.

The American Elevator Company have been notified by the Midland Railway Company that their proposition to erect two "Otis Standard" hydraulic high-speed elevators in the St. Pancras Hotel, in place of the existing ram machine, has been accepted, and the work is, we understand, to be carried out forthwith. The machines are to be of the regular "Otis" type, and each is to be capable of lifting a load of 1,500lb. at a high speed.

Extensive alterations and additions have just been completed at Messrs. Duck, Son, and Pinker's new premises, Queen's-road, Clifton. The work, which was intrusted to Messrs. Hayward and Wooster, contractors, of Bath, has been carried out from the designs, and under the superintendence of, Mr. E. Henry Edwards, architect, of Clare-street, Bristol.

The tercentenary of the Grammar School of Wakefield was celebrated on the 19th inst., when the foundation stone was laid of a new wing. This will, when completed, provide a chemical laboratory 33ft. by 29ft., with master's room adjoining, a lecture theatre 41ft. by 30ft., with spacious anteroom, an art room, and a gymnasium, which, occupying the entire basement, 51ft. by 39ft., will open on to the playground. Mr. Viall prepared the designs, which are being carried out under the superintendence of Mr. William Watson, architect, of Wakefield.

The Archbishop of Canterbury was the preacher on Tuesday at the reopening services of East Farleigh Church, which has been almost rebuilt at a cost amounting to nearly £6,000, Mr. J. L. Pearson, R.A., being the architect.

Alterations have been made to the town-hall, Ellesmere, embracing the ventilation, which is now carried out on the Boyle system, the latest improved form of the self-acting air-pump ventilator being adopted for the extraction of the vitiated air.

At a meeting of the Peterborough Cathedral Restoration Committee on Wednesday, Dean Argles offered to give £500 towards the removal of the organ to the triforium. The offer was accepted with thanks. Stalls for the choir were also accepted from the Freemasons of England, the corporation of Peterborough, and Mr. Gates, the chapter clerk.

The Rev. Canon Grainger, who recently presented to Belfast a valuable collection of antiquarian objects, for which a special building is being erected by the corporation, died on Wednesday at the rectory, Broughshahe, co. Antrim.

WATER SUPPLY AND SANITARY MATTERS.

Birmingham.—A special meeting of the City Council was held on Tuesday to consider the draft of a Bill empowering the corporation to obtain a supply of water from the rivers Elan and Claerwen in Wales. Sir Thomas Martineau, in proposing the approval of the Bill, explained that authorisation was given for borrowing £6,600,000. This amount was necessary in order to meet the requirements of the next fifty years. The first instalment of works was estimated to cost £3,340,000. The committee considered it desirable to become the owners of the water-shed itself, in order to prevent future pollution. Councillor Jarvis pointed out that the estimates had been increased a million since the scheme was last before the council. The Bill was approved, and a town's meeting will next be convened to obtain the sanction of the ratepayers.

Broxbourne.—Messrs. Bailey Denton, Son, and North, of Palace Chambers, Westminster, have received instructions from the Ware rural sanitary authority to report on the question of obtaining a good supply of water to the villages of Broxbourne and Wormley, Herts, and also upon the sewerage of the last-named village, which is without any means whatever of efficient drainage.

Godalming.—The Godalming and Farncombe Water Company have just extended their operations, inaugurated twelve years ago, by making a fresh bore-hole near Peper Harrow-road, the water being conveyed there by means of a siphon, along a 6in. main to the well at the works in Sandy-road, the distance being 869 yards. The quantity of water thus obtainable is about 6,000 gallons per hour. The work has been carried out by the contractors, under the supervision of Mr. Harris.

Lichfield.—Major-General Phipps Carey, R.E., an inspector of the Local Government Board, held an inquiry at Lichfield on Friday, with reference to an application by the city council to raise upon loan the sum of £2,500, for works of sewerage and sewage disposal. Mr. C. J. Corrie, city surveyor, explained the proposed works, which have been rendered necessary by recent lawsuits at the instance of Earl Lichfield, who, some years ago, obtained an injunction against the corporation for polluting the brook which runs through his property. There was no opposition to the scheme, and it is understood the inspector's report will be favourable.

Oldbury Sewage Works.—The Oldbury Local Board some time ago invited applications from experts with regard to laying down an improved system of sewage disposal at their outfall works. The population at Oldbury is about 20,500, and the average daily flow of sewage is computed at 500,000 gallons. Three engineers were selected to submit schemes to be sent in under motto. At the last meeting of the local board the sewage committee recommended that the scheme marked "Forward" should be adopted, that schemes marked "A1, A2, and A3" should receive the second prize, and that the scheme marked "Practical" be awarded third prize. The report of the committe was unanimously adopted. The author of the selected scheme is Mr. H. Bertram Nichols, C.E., of Birmingham. The process proposed is that known as the "International process." The existing works and land will be utilised as far as possible, the present tanks being altered in construction to adapt them to the new process. The sludge will be pressed into cakes, the necessary buildings and machinery being provided in the scheme. The cost is estimated at about £6,000.

The Lead-Poisoning at Wakefield. — The waterworks committee of the Wakefield Corporation have decided that Dr. Tidy and another expert shall be engaged to thoroughly investigate the question of alleged lead-poisoning from the use of the water supplied from the corporation works, with the object of ascertaining the cause, and applying such remedial measures as the corporation may be advised to be necessary and expedient. One of the main objects of the inquiry will be to make an exhaustive examination of the water from its source on the Rishworth Moors to the point at which it is delivered to the consumer.

New Sunday-schools, which are admirably adapted for their work, have been erected for the trustees of the Methodist Free Church, Crossens, Southport, at a cost of £1,100. The opening ceremony was performed on Wednesday afternoon, the 18th inst., by Mrs. W. Jones, of Birkdale, for which purpose a silver key was presented by the architect, Mr. G. E. Bolshaw, under whose supervision the work has been carried out by Messrs. Fenton and Fleet, of Southport.

At a general meeting of the Institute of Painters in Oil Colours, held on Wednesday evening, Messrs. Edgar Bundy, R.I., Carlton A. Smith, R.I., William Rainey, R.I., St. George Hare, Leslie Thomson, and Anderson Hague, R.I., were elected members.

Our Office Table.

From Exeter is announced the unexpected death of Mr. Alexander Stuart, M.S.A., an architect of considerable ability, and one of the most popular all-round athletes in the West of England. He died at his residence in College-road, Exeter, on Monday, after a brief illness from typhoid fever. On the death of Mr. Packman, architect, of Paris-street, Exeter, Mr. Stuart, who was then in practice in Edinburgh, joined the firm, and soon became widely known as an energetic footballer and oarsman. Mr. Stuart, who was only 35 years of age, leaves a widow and three young children. He joined the Society of Architects in 1888.

Mr. Alfred Henry Haggis, the deputy chairman of the London County Council, who died suddenly while proceeding in an omnibus to the Council meeting on Tuesday, was born in London in 1834, and was thus in his 56th year. He was the proprietor of extensive saw-mills at Blackfriars, Paddington, and Caledonian-road, but since his appointment to the office of deputy chairman of the Council, with a salary of £1,500 a year, he had practically relinquished active participation in business to his two sons. He had for the past eight years been an alderman of the borough of Croydon, and, on the formation of the London County Council, was elected as a member for West Southwark, and was chosen by his colleagues on the equally sudden death of Mr. Firth, M.P., to occupy the post of chief salaried official of the Council and head of its staff. He issued last week an exhaustive report on the scheme for intrusting the Council with the London water supply, of which he was a strong advocate.

The death is announced from Clifton, Bristol, of Mr. James Jackson Curnock, a well known landscape artist. Mr. Curnock, who was in his 52nd year, was the son of a Bristol artist, from whom he received his first instructions, afterwards studying at the Bristol Academy. For several years he was a regular exhibitor at the Royal Academy, and at most of the provincial exhibitions. At the Manchester autumn exhibitions, and at the Royal Cambrian Academy, Curnock was frequently represented by excellent work. Among his best-known pictures are "Ellen's Isle, Loch Katrine," "Loch Eornish, Isle of Skye," "Autumn," "The Idwal Mountains," "Snowdon," "The Pool below the Bridge," and "Driving down the Sheep." Of one of his works—"The Lengwy, at Capel Curig," exhibited at the Royal Academy in 1875—Mr. Ruskin remarked:—"I find this to be the most refined landscape of all here; too subdued in its tone for my own pleasure, but skilful and affectionate in a high degree. . . . A calm stream patiently studied. The distant woods and hills are all very tender and beautiful."

At a meeting of the Edinburgh Architectural Association held on the 19th inst., the newly-appointed honorary librarian disclosed the unwelcome fact that a number of valuable books had been removed from the library. In consequence of this disclosure, and as no information was left by which the books could be traced, it was reluctantly resolved to close the library in the meantime, in the hope that this decided step might lead to the restoration of some of the missing volumes. The committee are of opinion that most of the lost books are kept back through carelessness or forgetfulness, as it is hardly possible to imagine what use anyone could make, say, of such a work as "Sharpe's Parallels," plastered over, as it is, with the stamp of the association. At the same time, they are forced to acknowledge that this safeguard is not always sufficient, as a short time ago two volumes so stamped were found in an auction-room among the books of a deceased member, and were only withdrawn from sale and restored on being claimed by the secretary of the association. The librarian was directed to request the assistance of the professional journals in giving publicity to these facts.

The annual exhibition of fine arts in Dundee, opened on Saturday by the Marquis of Lothian, embraces a good display of contemporary English and Scottish pictures, as well as an interesting loan collection. The latter includes Millais's "Chill October," lent by Lord Armstrong; G. F. Watts's portrait of Sir Frederic Leighton, and works by Constable, Raeburn, and Alma Tadema. Among the general exhibits are two landscapes by David Murray, and others by Beattie, Brown, and J. McTaggart, three *genre* works, and a portrait by Ogilvie Reid, and a study of Scotch character by Gourlay Steell. In the water-colour gallery are the two last sketches made by the late Sir W. F. Douglas, "Study at Cordova," by A. Melville, and landscapes by Tom Scott and G. Johnstone. The chief exhibits in the sculpture gallery are the memorial busts of Baillie Harris and Miss Harrison executed by John Hutchison. The display as a whole is above the average of Dundee.

A minute has been issued by the Committee of the Privy Council on Education with reference to the examinations in science subjects. The number of candidates presenting themselves for examination in the science branches is so large that the machinery of examination and registration is already severely strained. These numbers will probably be soon so increased as to render it impossible to make satisfactory arrangements for examination. At the same time the means recently placed at the disposal of local authorities for providing or aiding instruction render it unnecessary for the Science and Art Department to continue to give direct aid for very elementary instruction in science. Such instruction can now be more effectually organised and maintained locally. After the May examinations of 1892, the payment of £1 now made for the second-class in the elementary stage of each science subject will therefore cease, but the payments for the advanced stage and for honours will be considerably increased. These changes, which come into operation in 1893, do not, it will be seen, affect the students in art schools.

A conference arranged by the Maidstone, Chatham, Rochester, and Strood Master Builders' Association was held recently at the Mitre Hotel, Maidstone, for the purpose of discussing and, if possible, agreeing upon a form of contract that should be more equitable and acceptable than that generally in use in the county, and for discussing other matters of interest in connection with the building. There was a large and representative meeting of the principal architects and builders of the county of Kent, upwards of 40 being present, and the chair was taken by Mr. G. E. Wallis, the vice-chairman being Mr. Callund, of Rochester. Several resolutions in accordance with the objects of the meeting were unanimously agreed to, and it was arranged to supply, as soon as possible, all architects, surveyors, and builders in the county with a copy of the same for adoption in the future.

Messrs. Goodman, Hughes, and Co. must be congratulated on the success of their opening sale on Tuesday last. Unlike other timber brokers who are in the habit of hiring a room for their sales, this enterprising firm has established a new centre by opening the Timber Auction Mart, at 44 to 47, Bishopsgate-street Without, which is directly opposite the new entrance to the Great Eastern Railway main line in Bishopsgate-street. One of our representatives viewed the hall, and was much struck by its size, shape, light, comfort, and business-like way in which it is fitted up. The catalogue consisted of 726 lots, comprising a fine selection of deals and battens, floorings and matchings, Quebec and Miramichi pine and spruce of all qualities, mahogany, cedar, walnut, oak, &c., besides sundries. There was a large attendance, including all the leading firms of the trade, and the bidding was good. The result of the sale was most satisfactory, and from what we can glean from the auctioneers themselves, it far exceeded their expectations. We understand that Messrs. Goodman, Hughes, and Co. are moving their offices to the same premises as their hall, and intend holding another sale before the close of the year.

Mr. Samuel Knight, F.R.I.B.A., writes that a small fragment of London-wall is now laid bare in the basement of the houses lately removed for rebuilding, Nos. 41 and 43, Ludgate-hill. It is but the remainder of a larger portion, forming a support to Pilgrim-street, in the rear southward, and which was lately cut away in course of building the new City Bank. It is probably a vestige of the flanking wall, shown on the ancient maps as running westward from the southern tower (or abutment) of "Lud Gate," which crossed the street at this point. Though but a fragment, it is the last which is likely to be unearthed in that locality for some time to come, and those who care to inspect it may do so—Mr. Knight adds—on application to Mr. Price, the foreman to Messrs. J. Grover and Son, the builders.

Mr. James Thomson, C.E., gave a lecture last week on "Sanitary Engineering: its Present and Future Position in Relation to the Architect's Work," at a meeting held in Edinburgh, under the presidency of Mr. J. H. Anderson, C.E., vice-president of the East of Scotland Engineering Association. The lecturer said he considered the drainage arrangements of the majority of the better class houses in Edinburgh were models worthy of imitation. Dealing with the subject of water waste, he suggested that, instead of having costly and irritating inspections of the water fittings in houses, the Water Trust should carry out experiments on a large scale for the purpose of thoroughly testing the different systems of hot-water piping. The movement for the national registration of plumbers was considered to be already showing beneficial effects in the trade. A long discussion followed, and the meeting terminated with a hearty vote of thanks to the lecturer.

The Bureau of American Republics in Washington furnishes us with information in regard to the timber industry of Honduras. The first wood-cutters in the territory went to Belize 150 years ago, and since that time Belize has been principally occupied with the various camps or mahogany works, which extend between the rivers Ulua, Chameleon, Patteck, and Wanks, on the Atlantic coast. The timbers at present most sought after for shipment are mahogany, cedar, rosewood, zebra, and fustic. Mahogany and cedar are the leading exports, and are shipped mainly to England. The price of mahogany in London ranges from 110dols. to 175dols. per 1,000 superficial feet, and cedar from 90dols. to 180dols. Rosewood, zebra, and fustic are cut into short lengths and shipped as ballast. Rosewood brings from 25dols. to 40dols., and fustic 30dols. to 40dols. The logs are squared before shipment. The timber on Government land is free to anyone who proves to the Administrator of Customs that he has ample means to transport it to market. The best season for cutting is during the rainy months, so that the logs may be ready by the beginning of the dry season, on March 1. Care is taken not to fell any trees less than 8ft. in circumference. The cutting is done by piecework, two trees from 8ft. to 12ft. being a day's work for one man, and a tree 25ft. in circumference being a full day's work for four men. Over 300 trees are sometimes felled in a camp in a single season. The carriage of lengths to the river banks is done principally at night. The export duties on mahogany and cedar are 8dols. per 1,000 superficial feet.

MEETINGS FOR THE ENSUING WEEK.

Monday.—Society of Arts. Cantor Lecture No. 1. "The Pigments and Vehicles of the Old Masters," by A. P. Lawrie. 8 p.m.
Royal Institute of British Architects. 8 p.m.
Leeds and Yorkshire Architectural Society. "Cements, Lias Limes, Concretes and Testing," by W. Bruce. 7.30 p.m.

Tuesday.—Institution of Civil Engineers. Discussion on papers on "Portland Cement," by H. K. Bamber, A. E. Carey, and Wm. Smith. 8 p.m.
Glasgow Architectural Association. "Antiquities of Renfrewshire," by A. Muirhead. 8 p.m.

Whdnesday.—Society of Arts. "Secondary Batteries," by G. H. Robertson. 8 p.m.

CHIPS.

A new block has just been added to the Post-office at Newcastle-on-Tyne, on the Westgate-road side. It has a stone front, and has been built from plans by Mr. Henry Tanner, of H.M. Office of Works. Mr. John Ferguson, of St. Mary's-place, Newcastle, was the builder, and Mr. E. S. Searle the clerk of works.

Messrs. Jones and Willis have executed for St. Paul's Church, Harringay, under the superintendence of Mr. Willey, architect, of Ludgate-hill, the ornamental pendants for lighting the interior, and lamps for the outside; also wrought-iron altar-rails, standards, door furniture, and curtains, carpets, &c., for the chancel.

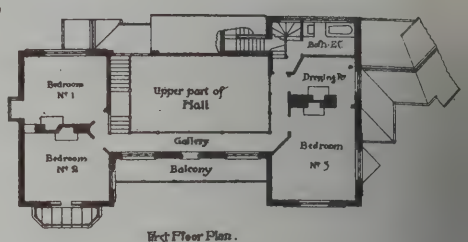
The Rev. C. W. Grove has offered to fill with stained glass the five large windows in the north aisle of the nave of Tewkesbury Abbey, and his offer has been accepted by the vicar and churchwardens. The new windows will match the five given by Mr. Grove in the Jubilee year in memory of his late wife, and which are in the south aisle.

The Archbishop of Canterbury will consecrate the new chancel and aisle of St. Andrew's Church, Croydon, to-morrow (Saturday) afternoon.

"THE GRANGE" HINDHEAD HASLEMERE.



Ground Floor Plan.



First Floor Plan.





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AN OLD · INN STAIRCASE AT DEDHAM

PHOTOGRAPHED BY CHAS. F. URQUHART 1891

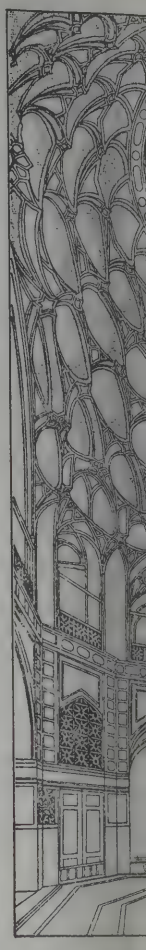
"PHOTO-TINT" by James Akerman, 6, Queen Square, London, W.C.



St Sophia · Constantinople ·



St Sophia Kiow · Russia

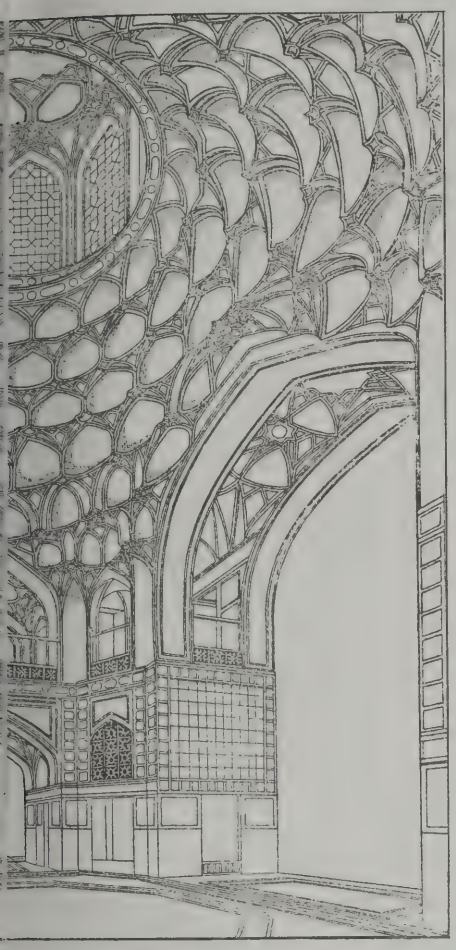


Cupola to t



Mosque of Sultan · Selim · at Adrianople · Turkey ·

Plan



OF THE EIGHT GATES OF PARADISE AT ISPAHAN



MOSQUE OF SULEIMAN CONSTANTINOPLE SIDE VIEW



PELLE D'ANI



ST SOPHIA CONSTANTINOPLE

Photo-Lithographed & Printed by James Akerman 5 Queen Square W.C.

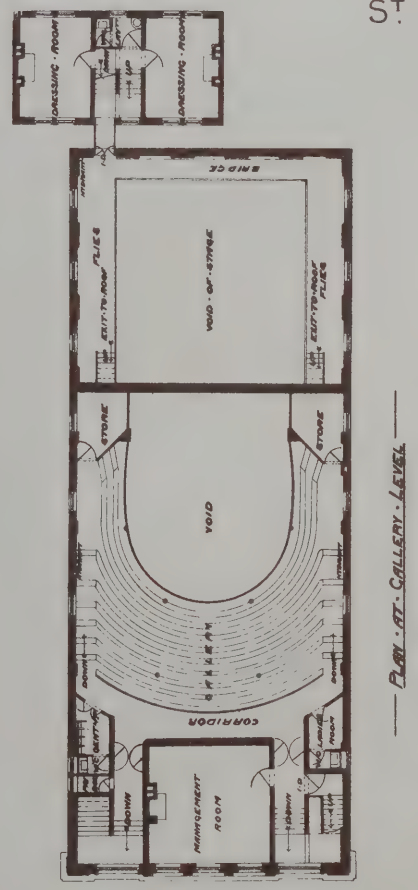




"PHOTO-TINT" by James Akerman, 6 Queen Square, London, W.C.

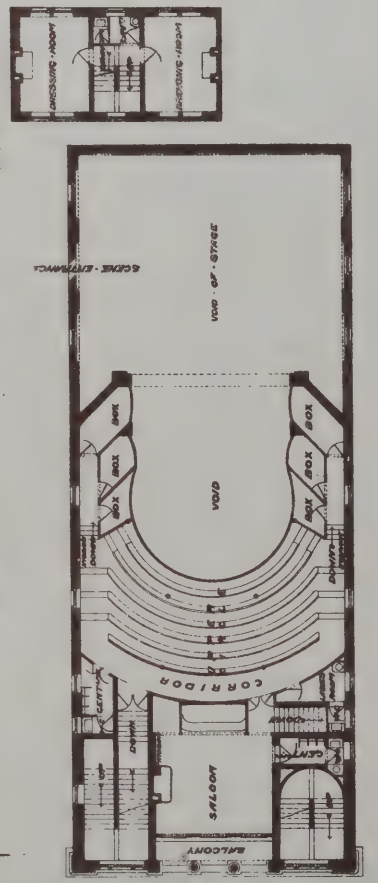
ALTAR-PIECE · STALSHUND · CHURCH · BLACK FOREST · FROM A PHOTO BY DR T. R. ALLINSON · L.R.C.P.

THE TRAFALGAR THEATRE,
ST. MARTIN'S LANE.



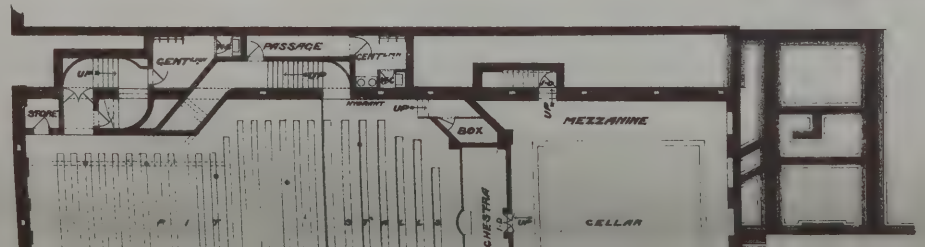
PLAN AT GALLERY LEVEL

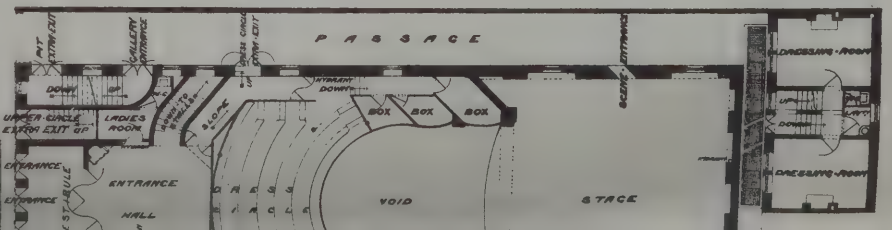


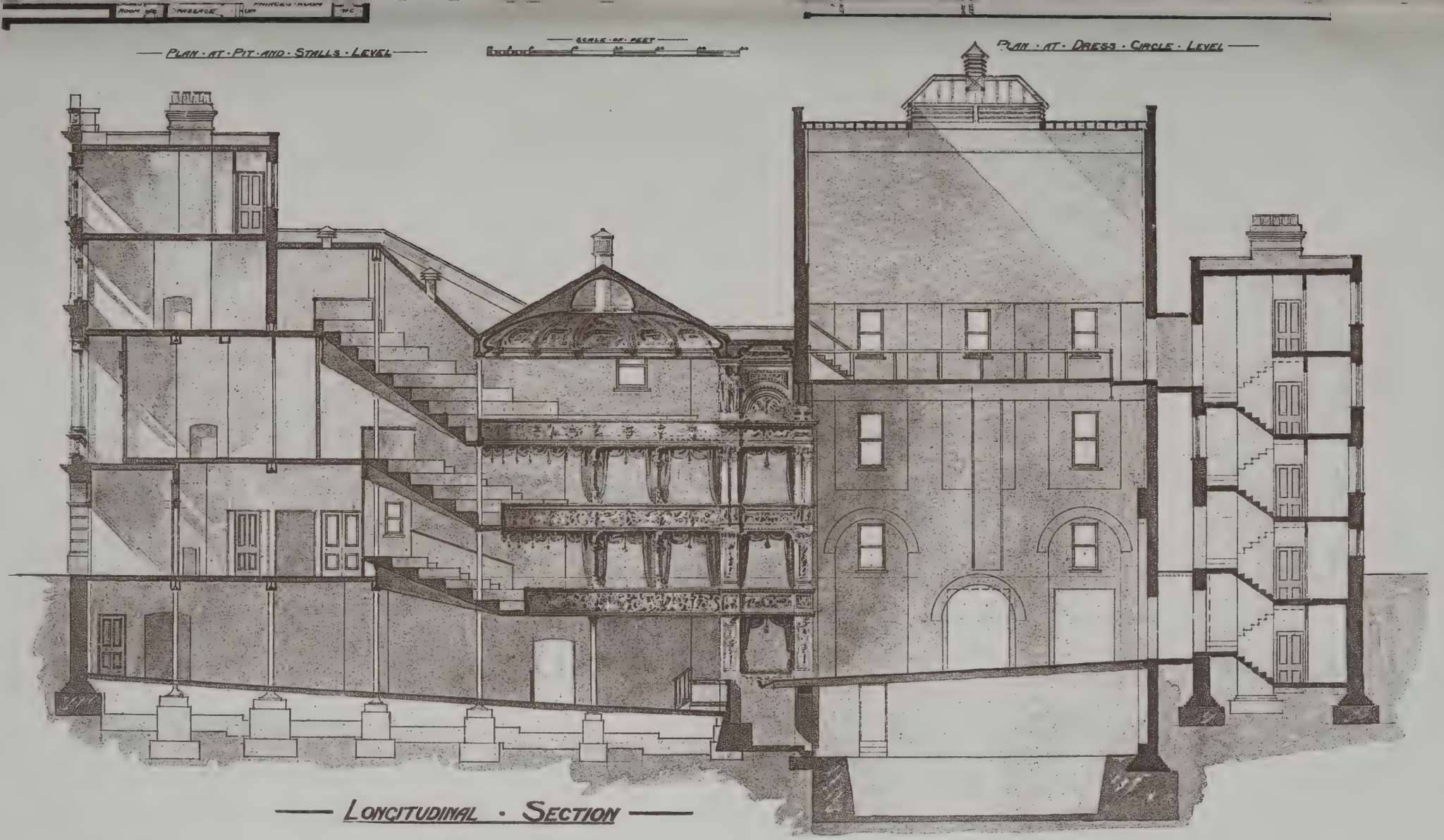


PLAN AT UPPER CIRCLE LEVEL

FRONT ELEVATION







LONGITUDINAL · SECTION

FRANK · KIRK — CONTRACTOR
19 ABINGDON · STREET — WESTMINSTER — S·W

WALTER · EMDEN — ARCHITECT
105 & 106 · STRAND — W·C

PHOTO-TINT by James Akerman, 6, Queen Square, London, W.C

E BUILDING NEWS
ID ENGINEERING JOURNAL.
VOL. LXI.—No. 1926.
FRIDAY, DECEMBER 4, 1891.

THE STUDY OF PLAN.

SERVERS of the progress which architecture has made during the last e or two must have become aware of ange in the study and practice of the Not many years ago imitation and style he leading motives. To select a model clothe a building in a certain style the main objects the designer had in It did not matter whether the build- as to be a house, a town hall, or a ı; a style was the first point to think for it was supposed to control in a easure the design of the building—even n. The process was really designing vithout inwards. Now the practice is ed: the process is to design the building he requirements of plan and construc- eaving the style to be the outgrowth latter. Indeed, plan is now recognised our great buildings as the funda- l principle and root of the design. ransference of attention from style to s only a reversion to the old system , instead of taking a resulting product rtain age or epoch, commenced at the ning by working out, step by step, the m of design. In other words, it was a ple, not a product, that the old archi- dopted with such successful results.

noters of architectural education are eginning to see the importance of the e, and to lay more stress on incul- the requirements of buildings, their ng, and construction. More attention paid to plan, for its own sake, than e case a few years ago; that is to say, plan distinct from elevation. We ber the time when an architect with hazy ideas of arrangement tried to his plan by coaxing it here and o fit his elevation. It was a matter mpromises in which the elevation predominant in the mind. Now, e contrary, we find many in the sion not very anxious to reconcile the ings. Competition designs for public ngs of late have shown many unfor- alliances between them. There is a ng conviction that well-thought-out nave the best chance of success, and re many who study their plans at the se of elevations, which latter appear as had been moulded to the outline of and made to pass muster at a short Of course, there is an evil in carry- her of these courses to an excessive Nothing can be worse or more al than to make the inner departments ms of a building subservient to the or; and there is also a danger in taking me of plan, and without further study ing elevations that will fit it. In not instances of municipal buildings, the s submitted by competitors have too ly followed the "sketch plan" which the or of the corporation has appended to nstructions," without so much as an t to modify or improve upon a plan is only given as a workable programme. leness is often a weakness of the plans e in competitions—that is to say, an imation to the proper arrangement is y thing attempted, and no time is spent sting frontages, in recasting the first draft or scheme, and in improving the of rooms or approaches. But the t wants a codified set of rules and efore the study of planning can be d with advantage. When we con- hat a plan comprises accommodation, areas, classification, division or distribution of parts, grouping, and, in one important sense, the design, the principle upon which the whole building hangs together, that cost is essentially bound up with it, we begin to understand that it forms the real germ or kernel of the whole scheme. Plan is a science as well as a fine art; it represents the same relation to the design which method and order do to a written discourse or essay. It would be difficult to give principles, as every building has its own programme and requirements. Every building has its own "keynote," or something which differentiates it from another. A domestic building has its aspects of principal apartments, its entrances, and its hall; a municipal building its offices, council chamber, police-court, and general assembly hall; a school its central hall and classrooms; a polytechnic its classrooms, workshops, general hall, swimming bath and gymnasium, each set of requirements demanding an arrangement of corridors and axes essentially distinctive, and in each case the paramount conditions of site have to be considered. One author truly says "that ground-plan, principal elevations, and roof-plan must be simultaneously studied to produce a satisfactory result," and he defines three points to be considered in the following order: 1, Position of entrance; 2, communication; 3, aspect of apartments. But we want something more definite than general principles. Those who have to tackle any of the numerous problems presented to the architect are at a loss how to proceed when precedents are scarce. One may have a notion of the sort of plan, the way of distributing the apartments or offices, but he must have facts to work upon.

These facts relate mainly to accommodation. The number of individuals or offices to be provided for, the sort of offices, and the classification are points to be determined if a municipal building is the problem; or the number and arrangement of patients in dormitories or day-rooms, if a hospital; or the size and dimensions of hall and classrooms, and the desk arrangement, if a school. These data can be only obtained by actual observation and study of buildings of the class which are not generally given in books. In competitions the superficial areas of the rooms to be provided are often given in a schedule, as for municipal buildings and public libraries; but these rough approximations of areas do not guide the architect as to the shape or proportion of room that is desirable. Thus, taking up at random the conditions published to architects in a recent library competition, the floor areas, and even cubical contents, are scheduled. Thus the lending library is to have 2,000ft. superficial, the reading-room to have 1,200ft., and the news-room the same. But what should be the actual dimensions of these rooms is left to the designer. He may elect to make his lending library 65ft. by 30ft., or 50ft. by 40ft., whichever suits his plan the best; but the proportion may not be suitable to the arrangement of the bookcases. Again, the dimensions of the reading-room ought to be decided by the number, position, and length of the tables and newspaper stands; but the area of 1,200ft. does not give any idea as to the proper length and width—say, 50ft. by 24ft. In short, the superficial areas do not provide any further information than that of mere space. A square room of a certain area may for some purposes be distinctly less appropriate and wasteful than one of an oblong shape designed expressly for the purpose, having reference to seat or bed accommodation, even though it be of less area. What is wanted, then, are dimensions of length and width rather than superficies. But these dimensions, as we have said, imply knowledge of such data as how many persons can stand or sit on a given area for purposes of public meetings or reading-rooms; how the seats, desks, and tables can be placed to afford the best results; how much area is occupied by a patient in a day-room and dormitory.

Cost, as we have hinted, is one of the facts that ought to be decided in the architect's mind before preparing a plan, and here also he is left to his own resources and often mistaken notions. To take a hospital for 800 patients: The cost per bed may vary from £150 to £250 or even more, exclusive of land; but the object of the architect, if the cost is limited, is to find how little per bed he can build it for. The area covered by the buildings must be reduced, if possible, and it is important to find out what is the minimum area of space per bed. A careful analysis of the cost and accommodation of institutions of this kind must be formed. In some cases, including land, the total cost has been about £318 per bed, as was that of the Glasgow Western Infirmary, the land alone amounting to the large sum of £60 per bed. The number to be accommodated is a factor, for a building for a few patients only would amount to a larger sum than one for a large number. In church and school building it is also convenient to know the cost per sitting or pupil, before a rough estimate can be given; but cost, in all these cases, depends on area allotted to each person, to height of building, and to class of workmanship.

Types of arrangement constitute another important study in connection with plans, and ought to form one of the subjects in the architectural curriculum. There is too much guessing and scrap-work. A plan here or there is chosen as circumstances permit, not because it is the best, but because the architect has seen a plan or a building of similar kind. The subject allows of a scientific classification. The comparative anatomist, the naturalist, and the pathologist alike make careful comparisons and classifications of the types of structure and disease for the object of defining and noting their peculiarities; the archæologist similarly classifies his knowledge of typical forms in the study of pottery or ancient sculpture; the artist and ornamentist do the same in describing the growth of styles; and it is equally important for the architect to make a careful comparison and analysis of plans for different buildings. He will find they will be of service to him in designing buildings for special objects, and in selecting an arrangement that will give the most successful results.

ROYAL SOCIETY OF PAINTERS IN WATER-COLOURS.

MANY old and well-known painters in water-colours are in strong evidence at the Pall Mall Gallery. Studies and sketches by the late Paul J. Naftel, Sir John Gilbert, Sir Oswald Brierly, Tom Lloyd, W. Collingwood, Miss Clara Montalba, Edward F. Brewtnall, W. Callow, George Clausen, R. Thorne Waite, and Mrs. Allingham, are numerous, and a screen is devoted to some very beautiful chalk studies of figures, heads, and drapery, by E. Burne Jones, A.R.A. For the delicate manipulation and freshness of landscape we have little to surpass the late Paul J. Naftel's series of English, Welsh, and Foreign scenery, as "In the Woods, Ponty-y-Caffyn, N. Wales," "On the Wharfe, Yorkshire" (94), and "Sketch in Westmoreland" (104) are all sharp, yet subtle in handling of the brush. The transparent washes of colour, with the high lights of foliage brought out by a half-dry brush and body pigment, are introduced with a charming sense of gradation and breadth. Mrs. Allingham's "Cottage near Pinner" (3), "Old Houses, Hampstead Heath" (198), and her "Spring Time" are delightfully-finished studies of English country life. Her pencil deftly depicts

ivy-clad gables, old brick and tile roofs, flowering creepers and hedgerows, but her minute workmanship is never destructive of repose, or of true feeling. Very widely different is George Clausen's "Idleness" (9), in his broad, sympathetic manner—a girl sitting in a meadow—or his "Cornfield" (101) and "Cloverfield" (165). The movement of mower in the latter, and the light and atmosphere are admirable. Norman Tayler is another close student of country lanes and flocks. The "Timber Waggon" (7) is a clever drawing of horses pulling their load through a swampy depression of the road; the horses are full of movement. In 155 we have also pure colour and breadth of handling. This time Tom Lloyd sends four subjects, all of the rural, quiet sentiment we are accustomed to see, though his style has slightly changed. "In Early Spring" (12) is a charming landscape, a narrow, grass-grown rivulet runs along the foreground, and two lovers are crossing a rustic plank bridge. The flags and rushes, the blossom of the trees skirting the river, and the distant church almost lost in the distant declivity, are painted with tenderness, and in a sympathetic manner. Calm quietude and brightness pervade the scene. Mr. Lloyd's technique, and the combination of sponge and body colour, give a pleasant atmosphere to the distance. No. 28, "Showery Weather," a drove of oxen and sheep, with open meadows and hill beyond, is in this respect, especially in the suggestion of rain, very clever. On the opposite side of gallery is another delicate study of tree-blossom and river (183), in which the handling almost reminds us of the late Mr. Naftel's and Mr. North's works. In the hands of R. Thorne Waite breadth and tone are the qualities which strike us. His "Storm Clouds" has much to remind us of De Wint or Copley Fielding. A small sketch, or "note," "Bad Weather" (32), "The Shoreham Valley" (34), "Cornfield" (153), "October," and "Barley Field" (317), are all subjects suited to his broad handling and decision of touch. Of tranquil lagoons and Venetian studies Miss Clara Montalba gives us several charming examples. The grey and pearly tones are seen in perfection in "The Alps from Cividale" (177), "A Grey Day, Venice" (242), large vessels under sail; and the soft, golden sunsets which suffuse her views of Cividale and Friuli, a Lombard district of Italy, exhibit the range of her palette. No. 96 is full of soft light. A sketch in the same beautiful and fertile region (103) is a delightful piece of suffused golden light—a placid river, with its rocky bank crowned by a church. No. 176, "Sunset," is a splendid study of gorgeous sunset and reflection, a perfect symphony of warm tones. Many other sketches of this lady's recent tour in Italy are exhibited, as in the opaline sea and bright regatta, Venice (6). Matthew Hall's sketch, "Stormy Evening in the Channel" (17), is a strong bit of natural sea colour. C. Napier Hemy has a nice study of "Portsmouth Harbour" (38), and some other sketches of sea and craft, as his "Fish Merchant's Steamer" (296), in a low key of colour. In the same class Sir Oswald W. Brierly sends some admirable "Studies of Boats" (295); a "Design for a Picture," painted for the Prince of Wales, representing the starting the Royal Thames Yacht Club to sail the Queen's Jubilee Yacht Race (244), and some other sketches of Venice, as in Nos. 48 and 146. In fact, Venetian subjects are the rage just now, even by those who have hitherto been contented with English scenery and atmosphere. The canals, lagoons, and piazzas of Venice have a fascination, though the impression of colour is different. Edward F. Brewtnall's "Dragon Cave" is clever and imaginative; and from the same hand we have a variety of subjects. "Near Kynance," with its deep-blue sea and scorched pasture, is one of the best. Mr. Robert Allan is represented in several strong Indian sketches. His "Service in a Sikh Temple," and "A Street in Delhi" (122), are characteristic of his blottesque style and strong sunlight effects. The sketches and studies of Herbert Marshall are numerous. Amongst the best are his "Hyde Park Corner," "Lincoln's Inn Fields," "Old Chelsea" (83), "Winter in London" (144), each and all correct in drawing, and admirably suggestive of those well-known landmarks. We can also admire the architectural study and drawing of Thomas M. Rooke, whose series of sketches from Lisieux display a painstaking tone of detail, as in No. 79, carved doorway and panels; corners and gable ends, Nos. 114, 116. A great contrast is presented between Mr. Rooke's work and William Callow's sketches of Continental cities. One gives studies of detail, the other charming masses of buildings, light and shade, full of poetry. Mr. Callow's work is rather less important than usual in the choice of subjects. His Bruges (222), and "Gorleston Pier," are both excellent. Albert Goodwin is represented by several delicate sketches, full of poetic feeling, of some of our English cities. "Bristol" murky and blue, a night effect, contrasts strangely with Miss Montalba's "November Day, Venice," which is next it. "Wells, from the Market-square" (154), "Rye" (169), "Whitby" (194), "Dordrecht" (285), are charming tinted outline sketches on grey paper with light washes. Samuel J. Hodson has a large picture, "Corner of the 'Ducale,' Venice" (152), besides other Venetian subjects; but we prefer his "Poultry Cross, Salisbury" (92), and his "Close Gate, Salisbury" (196), for effective treatment. Sir John Gilbert, R.A., sends two pictures, "The Squire's Daughter" (90), two ladies on horseback in a forest, being importuned by gipsies, and a bold and cleverly-handled head, "Belinda" (182), full of vigour and grace. George A. Fripp also has several studies of coast scenery, chiefly in Kent and Sussex. "Near Sandwich" (86), and "On a Sussex Common" (355) are sketches in which atmosphere and breadth are conspicuous. Alfred D. Fripp's luminous and delicate sketches on the coast of Dorset (111), and a cornfield with distant glimpse of sea, are full of sunlight. Basil Bradley's large picture, "A Westmoreland Sheep-Washing" (99), is rather cold in tone. The series of studies of figures, heads, and drapery in chalk, by E. Burne Jones, lends an additional interest to this exhibition. Many of these are in coloured crayon. We especially note his four figure studies of Joseph, King Gaspar, Balthazar, and Melchior in the picture "Star of Bethlehem" (123-126). On the screen is a fine study of the Virgin for the same picture, one of those sweet and expressive, yet sad and wistful, faces so often found in this painter's compositions. The figure is clad in a purple cloak and dark-red robe. Another new chalk study of a Head has also a beautifully sweet expression. The studies of drapery are full of grace and refinement. Henry Wallis's Persian lustre vases are fine colour studies of deep turquoise blue. We also see some nice studies by H. Stacy Marks, R.A., Henry Henshall, E. F. Brewtnall (321), G. Lawrence Bulleid, W. Collingwood, Birket Foster (358), &c. One important incident subject is H. G. Glindoni's "Doubtful Customers" (265), a comfortable parlour of an inn, with a party of guests drinking to the toast of some scheme. The costume and accessories belong to the time of Charles I. The landlord and waitress are rather disconcerted at the mirth and equipment of their guests, who carry pistols in their waist-belts. W. Eyre Walker is another contributor of North-country scenery: Nos. 266 and 275 are in nice tone, and we must also notice Frederic Shield's decorative panels of "Daniel" and "Jeremiah" (269) monochrome studies for a series of eight spand having decided claims for their purpose. cannot do justice to other painters of l scape, which preponderates in this gall suffice it to mention some clever and spi sketches by D. Murray, Wilmot Pilsb Edith Martineau, and Charles Gregory.

THE PLUMBERS' COMPANY.

ON Tuesday evening the Master, Mr. W Bishop, the wardens, and court of the C pany of Plumbers entertained the Lord Mayo Sheriffs of London, and a number of gentl interested in technical education and sanit at a dinner given at the Cannon-street H Among those present were Sir James Cri Browne, Mr. G. W. Kekewich, Mr. Thomas, M.P., Sir W. T. Lewis, Professor W Hicks, F.R.S. (Sheffield), Mr. T. Blashil Frederick Abel, F.R.S., Mr. L. L. Dil M.P., Sir Joseph Fayrer, Mr. H. Craik, M Boulnois, M.P., Mr. J. Penn, M.P., M Gripper, Mr. J. F. Beazley, Mr. A. J. I Dr. J. R. Thomson (President British M Association), Mr. Councillor Crawford (C man of the Health Committee, Glasgow) R. C. Driver (President of the Institute of veyors), Dr. R. Thorne-Thorne, Dr. E Richardson, Sir Philip Magnus, Dr. G Poore, Sir T. H. Wood, Mr. J. Wr Connon, F.R.I.B.A., Mr. G. C. Sh A.R.I.B.A., Mr. P. Wilkinson, F.R.I. Mr. MacVicar Anderson, F.R.I.B.A., Mr. Colls, Mr. D. T. Bostel, Mr. W. Braith (Leeds), and others. After the usual toasts, the chairman, in proposing "The H of Parliament," stated that the Plumbers' Com was about to appeal to the Houses of Parliame a Bill to give them disciplinary powers. great object was the protection of the publich by giving the public a means of distingui between competent and incompetent work through a system of national registrati plumbers. Other toasts followed. Earl the day a conference took place at the Guil representatives from Glasgow, Newcastle, pool, Manchester, Birmingham, She Dublin, and other large towns being pr After a discussion, it was resolved, "Tha conference of representatives of educa authorities, master and operative plumbe County Councils and others, is of opinio the technical education of plumbers is a tion of national importance, the provis which is exceptionally difficult and costly that it is expedient that its special clai money help should be brought before the tion of the County Councils, and Municipa porations, and Township Commissioners."

TEMPORARY STRUCTURES.

THE question as to what constitutes a porary structure" within the mean the Metropolitan Building Act, though not one, is likely to be a more frequent ca doubt than hitherto. An application was the other day on the part of the London C Council to raise a question as to this p namely, what is to be considered a "struc erection which cannot be set up witho authority from the Council under 45 Vic. c sec. 13. That provision plainly says that i not be lawful to set up "any wooden struc erection, unless exempt from the op of the first part of the Act, with license in writing," which license ma tain certain conditions as the Counci think expedient; but there is an ex from this enactment in the case of any structure of a movable or temporary cha such as that of a builder's office used duri erection or alteration of a building. The tion arose on a case in which a builder up, at his own residence, a wooden struc iron wheels, to be used as an office, and the purpose of any erection. No doubt th on wheels was intended to be of a per kind that could be shifted about. A su was taken out against him, and the ca heard at Clerkenwell; but the magistra Bros, refused to convict, because he thou case did not come under the meaning section, as the structure was a "b office." The London County Council for a rule for a mandamus to the magis



ase to raise the question, as it was con-hat the magistrate was mistaken in his the exception, it was contended, applied uch structures as were put up tempo-nd during the erection of a building. A was granted.

question sought to be raised by the County Council is important, because of frequent erection of structures of a y character. If Mr. Bros's ruling in g the summons be a correct interpreta-ie section of the Act, any structure on ther than builders' offices might be vith impunity. We should have work-offices, and even shops on wheels or occupying positions in the forecourts and of suburban houses without any power re them. We know there have been to erect wooden structures on wheels for se of offices and shops, but the general of those conversant with the Act has prevent encroachments of this sort. which have been erected have been by the consent of the late Board, but it doubtful whether such consent has rable in the public interests. If a license ly obtained for structures of wood of this n, a large number of persons might avail es of it. We may be sure the County Council would be overwhelmed with applications, and in many of our thoroughfares wooden shops and offices be erected to the great inconvenience of neighbours. It would be difficult to say where it might stop. The precedent is at best a dangerous one, even if strict conditions as to removal were attached to the permission. The definition of "any wooden structure or erection of a movable or temporary character" is somewhat vague, for if the adoption of wheels can make the structure a "movable" one, the meaning of the Act can easily be evaded. The word "movable" appears hardly the term, as it certainly contravenes the better adjective "temporary," which the framers of the Act had mainly in view as the only condition of existence, or exemption under the Act.

NEW BUSINESS PREMISES, BRADFORD AVENUE, RED CROSS STREET, E.C.

THESE business premises, which are now being finished, stand on the site of the old Cripplegate brass-foundry of Messrs. J. Warner and Sons, and consist of eleven warehouses in all, and are being erected from plans by Mr. C. J. C. Pawley, of 2, Prince's Mansions, Victoria-street, Westminster, S.W. The contractor is Mr. Nurse, of Clapham-road, S.W.

ARCHITECTURAL ASSOCIATION.

THE fortnightly meeting of the Association was held on Friday evening, the President, Mr. F. T. Baggallay, in the chair. The following new members were elected:—Messrs. W. Furnieux, L. C. Davière, J. Cartledge, G. Newport, P. Dixon, W. Mackinnon, and D. G. Salier. It was announced that Mr. A. Oliver had presented a prize of five guineas for the best sketches and measured drawings of old buildings, to be competed for next session by members of the Class for Sketching and Measuring. The gift was accepted with thanks.

JOHN D. SEDDING: HIS WORK AND INFLUENCE.

A biographical sketch of the late Mr. J. D. Sedding, illustrated with many sketches and designs, and by working drawings of buildings, was read by Mr. H. Wilson, one of his pupils. We gave a portrait of Mr. Sedding in our issue of March 7, 1890. In his introductory remarks, Mr. Wilson satirised the proceedings at art congresses, observing that the passing craze was for an art which was in everybody's mouth but in nobody's heart. With John Sedding this love of art was, however, a reality, as everyone felt who was brought into contact with him, and felt the influence of his rarely gifted and lovable nature. He was born in 1838, at the period of

the great Revival of Gothic architecture and the inception of the pre-Raphaelite movement among painters. While yet young John Sedding fell under the influence of Ruskin. He diligently studied the works of the great poet-critic lent him by Mr. Kegan Paul, and copied the drawings so accurately that Mr. Paul had said he should, in some instances, have scarcely known that they were not the originals. In 1858 Sedding went into the office of Mr. G. E. Street, where his brother Edmund had been trained. The temperaments of the two men were so different—the one autocratic and severe, the other fiery—that they were not likely long to agree. Having formed lasting friendships with William Morris and Norman Shaw, who were then in Street's office, Sedding left in 1863, and entered into partnership with his brother Edmund. He would, however, never hear his old master depreciated, and was loyal to his memory. In Cornwall, where most of his work lay, Sedding's genius found congenial scope. He studied every detail of the little moorland churches, and in his restorations and enlargements of these simple edifices he introduced work which might have been done by the original builders, but for some indications here and there of his own peculiar style. All his additions harmonised thoroughly with the existing buildings and with the surrounding country. This class of work taught him the almost parochial character of English work, and no pains were thought too great to secure a local character and interest for any works, and his after success as a designer was largely due to the extraordinary care and pains he bestowed on these undertakings. In 1868, on the death of his brother Edmund, he took up his practice, and finding little scope in Cornwall, he removed to Bristol, and having but little to do, he spent his leisure time in making designs for embroidery, into which he introduced the most varied subjects in sacred symbols, angels, birds, squirrels, foliage, and flowers, all exquisitely drawn and well adapted to their positions. He worked out a conventionality for himself, and while his flowers, birds, and beasts were unlike those of nature, they had a quaintness, an originality, and an individuality peculiarly their own. Many of these designs were made for the Home of St. Raphael at Bristol, of which he was the precentor. In 1872 he married Miss Rose Tinling, who was of like spirit, and able afterwards to aid him in his designs, and to execute his embroidery. Three years afterwards, in 1875, he removed to London, and opened an office in Great Charlotte-street. For the first few years he had little to do, but sustained by his wife's affection, and his own trustful nature, he was enabled to weather the storm. Mr. Russell, of St. Alban's, Holborn, has given interesting descriptions of the happy home in Great Russell-street, and of his hospitality and kindness to young architects. During those early years of London practice Mr. Sedding worked hard at designs for furniture, embroidery, and gold and silver ornaments, all of which were worked out with great care and much originality. All his work was permeated by his own personality, and while he had studied much of the past, they were saturated with the spirit of the times. Proceeding to describe some of his works in detail, the lecturer observed that one of the most characteristic of the earlier ones was the church of St. Clement, Boscombe, near Bournemouth, built in 1871, a feature of it being the north chapel, fitted with tapestry hangings, furniture, and stained glass, all specially designed by Mr. Sedding. The church was connected by a brick and oak mullioned corridor with the vicarage, the group forming an harmonious whole. Sedding, Mr. Wilson continued, was a man of great vivacity and geniality; but with all this he appeared to possess a sense of presentiment of impending disaster. These times of trial in his earlier London practice made great demands on his strength and endurance. He worked with passionate energy, wrote many lectures and papers, and made designs for the clients who as yet were not; while Mrs. Sedding often worked at her embroidery in the office. By degrees, as his worth and powers began to be recognised, his work increased. In referring to his great influence over others, Mr. Wilson alluded to his impulsive, eager, almost bashful manner in the office, to his winsome ways, and delightful *bonhomie*, adding that his pupils became his personal friends, and the builders and workmen executed, for his sake, much work which was never to be paid for by the client, and no excursion of the Art Workers' Guild was complete without his hilarious presence. His unaffected love of nature was very apparent, and by his carvings and details exhibited great freshness, freedom, and power. The chief gift was, the lecturer thought, that of seeing and of imparting sight to others, and in this he was foremost in his day. In one of his latest works, Holy Trinity Church, Sloane-street, an endeavour was made to meet modern needs in a modern way by means bound down by no requirements of a given style. The church, which had evoked hearthy admiration from Burne-Jones and William Morris, was intended to be a field in which the first workers in each art and craft should unite in doing their best. We should profit little by Sedding's life work if we did not endeavour to carry out his teaching, yet the lecturer thought that the gigantic scheme of education just inaugurated by the Architectural Association would undo much of the work which John Sedding set himself to accomplish. The result of the scheme would be to create a set of dilettanti proprietors of plan factories, and its whole tendency was to perpetuate the Academical system of training. The scheme was certainly an admirable system of preparation for passing the Institute examination, if that were a goal worth aiming at. On the contrary, he held that the Royal Academy and the Institute had done much to impede the progress of architectural art. What was wanted was the abolition of the architect employed and the revival of the artist workman. The practice of the noblest of the arts was at present being degraded into a mere money-making business office. The designer ought to erect his own buildings; he should get rid of his office and set up a shop, and not a studio. As to pupils, as Goethe had said, the best of all preparation for a workman was to take part of the work of his master. He would advocate that the master designer should take a series of shops where the work could be prepared, for the truest education for the artist was that of working at his craft. He would predict that the Association scheme would end in ignominious failure, and architectural education would simply mean filling the brains of youths with useless book learning. It would be better that the self-styled practical man of business should restrict himself to laying the drains he loved so well. The late John Sedding made himself a workman, and regarded no trouble as too great to take to ascertain the points in the trade; he used the workmen's fingers as his own, and the men felt the reflex influence of his enthusiasm. The men in the employ of a firm at Ilmington who executed much of his work, were fast forming an art school. The fact that one man had such influence showed that others could do it if they would, and then we should see a national art and a national craft. Mr. Sedding wore himself out by his exertions, and died unexpectedly, after a short illness, while on a visit to Winsford vicarage, and his devoted wife, who went down to nurse him, followed him after a few days.

Mr. Leonard Stokes, ex-president, in proposing a vote of thanks to the lecturer, expressed his admiration of Sedding, whom he had known as a friend, and referred to his church of St. Clement, at Bournemouth, as the best in a town where nearly all the R.A. architects had built churches, while the church of the Holy Trinity, Chelsea, was of the greatest interest. He regretted that Mr. Wilson had seen fit to attack the Association scheme; Sedding himself, although opposed to the Institute system at one time, changed his views latterly. Neither the Institute nor the Association should be blamed for recognising the existing state of things in the profession and endeavouring to improve them, even though they recognised that in points they were wrong.

Mr. E. W. Mountford seconded the motion, remarking that Mr. Wilson was wrong in provoking a discussion on the committee's methods with such a subject. He referred to the enthusiasm and geniality Mr. Sedding displayed during the Association excursions, and in alluding to his works said it was as puzzling as interesting to ascertain what his style really was.

Mr. C. H. Brodie and Mr. D. J. Blow deprecated Mr. Wilson's attacks on the Association's new scheme of education, while Mr. Owen Fleming suggested that Mr. Wilson's enthusiasm could be most usefully employed, not in criticising the Association's method, but in practically aiding the work at the Marlbor street studio. It was to be regretted that men whose work they admired were assun lofty superiority to the ordinary practition

The President, in putting the vote of t which was heartily accorded, expressed his that Mr. Wilson should have indulged in a outburst which he felt sure was not inten be uncivil to the committee; it would be helpful if he and other critics would show how to improve their methods of work.

Mr. Wilson in reply expressed his regre had appeared to assume superior airs; felt strongly that if the Association establi studio they would be perpetuating the p bad system of training. The right way set men to work on the buildings themselve he could be of any assistance to the comm he should be happy to aid them. He ha haps, expressed himself too strongly; but necessary to use paradoxes to induce pe think for themselves.

ROYAL INSTITUTE OF BRITI ARCHITECTS.

THE third ordinary meeting of the In for the present session was held on M evening. The president, Mr. J. Ma Anderson, announced that Mr. Wate R.A., his predecessor in the chair, was un be present, owing to the death of his b Mr. Theodore Waterhouse.

SCULPTURE AND SCULPTORS' METHODS IN RE TO ARCHITECTURE.

Three short papers on this subject wer by an architect and two sculptors, Messrs Belcher, W. S. Frith, and T. Stirling Le

Mr. Belcher observed that architectu sculpture appealed to like emotions. Bu might impress the mind of the observe pendently of sculpture; but when tecture and sculpture were combined in one stronger emotions were aroused. He p to make a few practical remarks suggested own observations and experience. The connection existed between the arts of ar ture and sculpture. Every architectura would gain in effect and force if associate sculpture; but how was this association secured? Sculpture had, however, a motive than merely to fill niches. He upon architects that if they could n quantity, they should endeavour to have in their works. Buildings should not be re as a mere groundwork for sculpture; latter should be subordinated to the archi and it was not usually necessary that a tural sculpture should have the finished ch of that intended to be placed in pedimen pure and simple outline was what they Great variations in the plane surface sh avoided, as with the increase of depth relief, there was a large collection and dust in the crevices, and an ad gloom in the effect. In this climate should be to make the most of light, an deepen the shadows. Largeness of scale i tecture could be obtained by the use of sc as the spectator naturally took the huma as the basis from which to estimate dim For this reason care should be taken building should be dwarfed by introducin ture too large in scale. In conclusion, that all should seek to realise that arch sculpture, and painting were but three of one art.

Mr. W. S. Frith dealt with the su how sculpture could and should be under relation to architecture. The question had two sides—that of subject, and that of execution. There was no difficulty in motives, that was subjects, for sculpt difficulty was for the sculptor properly himself of the labours of his predecessors possessed beauty of line and of form was subject for reproduction in sculpture. the fragmentary, or gallery class of sculpture was brought into close relat architecture—the pedestal was subord and conformed to the lines of its statue large work the sculpture conformed to t tecture, which gave it light and shad the sculpture supplied scale, and gener tributed to the effect of the building. not sufficient that sculpture should be be itself: it should be appropriate to its posi

l properly fill its prescribed space. Architecculpture had to be executed to please the eye in a prescribed situation, and the requiren of certain optic laws as to light and shade oreshortening must be observed, and it be remembered that the eye was especially ve in the observance of the vertical plane. ought the affinity of masonry to carving ulpture was, in the present day, somewhat oked. The weaving of the decoration into ucture was the first requirement in archi- sculpture, and next to it were the ons of the scale and of the light hade, the determining factor in which problem being the probable intensity light under which the work would n. On this last point the greatest number takes were made. It was very difficult t this when a building was covered hoardings, and yet the usual stipulation at all the scaffolding should be removed at liest possible moment. The abstract study pture was as necessary for the architecs for the gallery sculptor. When a subis repeated it ceased to interest, and so it the greatest importance that all sculpture be original and varied. There was the realm of nature from which to select subs In going to nature for inspiration, the y to reproduce what is observed directly e repressed; and another fault to be was that of overloading the work tail. Niche and finial figures admitted siderable freedom of treatment within limits. Panels were naturally complete in themselves, and there was a danger sculptor might become so absorbed in tment of his subject as to overlook the n of their relation to and position in the g. Having referred to the use of sculpture ptian art, and its development in Greece, arked that the treatment of the sculptures Parthenon was admirable, for slight as it depth in the metopes, it was so executed k right when seen from below. It was re of the highest class, artistically con- to its position without apparent effort on of the sculptor.

T. Stirling Lee said he looked forward to when there should be no such distinction now existing between architectural and sculptors, but when all would simply be sculptors. When the sculptor received a sion, the first question he asked was what e the probable limit of cost? Having his point, the sculptor next considered the and purpose of the building, so as to n appropriate subject. That selected, ing clearly arranged what it was to tell ld, the sculptor took paper and pencil and carefully the architectural lines and gs by which it would be inclosed, to n the leading lines, scale, and light and Of course, the highest class of subject was hich the human figure was introduced, and ment was the most harmonious that could ued, for there was a continuity of flowing m head to toe throughout the whole nd in every limb, and an unbroken was maintained throughout. The sketch mpleted and made to harmonise with the ural surroundings, a model was made in plaster, so as to estimate the important light and shade. This was governed by wn laws of optics, and it might be disthat it was the relative amount of light and the sculpture, due to their climate and surgs, that gave to the works of each country ar national characteristics. The ques- he amount of shadow cast on the proposed by the surrounding mouldings had to lly considered, as the height and depth of ng had entirely to be governed by these gs. When the model was completed, it ell, if possible, to place it in its ultimate any desired alteration could then be d the sculptor had a complete grasp of . In altar-pieces and reredoses, where icting lights were so very dangerous to t of the work, it was most important model should be tried *in situ*. The work ultimately treated in a plastic or glyptic as a cast or carved work; but he should imself that evening to the latter mode nent. Two classes of laws had to be d in figure subjects: the anatomical and etrical. The lecturer showed a finished rtoon, life-sized, of three draped female and explained how, this being set up alongside, the various planes of stone were carved from it on purely glyptic lines. Considerable skill was needed in selecting the lines of the drapery to be shown. His own plan was to make a small model of the figure from line in the required attitude and position, and then to drape it with Indian muslin, fine flannel being used for drapery where a thicker fabric was to be shown. In the sculptures on St. George's Hall, Liverpool—photographs of which were shown—the perpendicular lines of the adjoining mouldings had to be very carefully kept in view. In the treatment of sculptured drapery no fold should ever be meaningless. In conclusion, he remarked that architectural figure-sculpture ought to have as the qualities aimed at those of solidity, grandeur, dignity, and repose.

In opening the discussion which followed, Mr. George Simmonds remarked that there could be little doubt that the architect, sculptor, and painter had come pretty generally to one conclusion—that any great period of art would be marked by the combination and co-operation of these arts. He believed that sculptors would be found whenever their services were wanted, to meet the awful and serious question of price. It was difficult for a man to give up much of his time and work for the low remuneration that was all that could too often be offered simply for the love of his art; but he believed that among the younger men there would be many who would be willing to devote more attention to architectural sculpture. There were certain effects in the charming cartoon of female figures exhibited by Mr. Stirling Lee which could not possibly be gained in stone. He thoroughly agreed with Mr. Lee that the drapery ought to harmonise with the figure, and that every needless line in its folds should be avoided. It was more easy to decide on the treatment of a sculpture which had to go into a given and definite position in a building, than for a gallery or cabinet subject which might ultimately be seen from any standpoint.

Mr. H. H. Statham thought some of the theories just formed as to Greek sculpture went too far. Architecture had, again, its own effects and poetry quite independently of sculpture. He was rather surprised that sculptors were so willing to give up their independence as to the treatment of pediment statuary, although he quite shared with Mr. Stirling Lee that architecture in panels should have regard to the inclosing mouldings. As to the frieze and metopes of the Parthenon, the sculptures were, he thought, only used decoratively, as they were also in the west front of Wells Cathedral. The Parthenon frieze seemed to him not to have been put in the right place: it is too high up, the relief was too low, and it was insufficiently lighted. He believed that the Greeks themselves did not regard the work so highly as we did, and that if it had to be executed now, a modern architect would have put the sculptures where they would have been better seen.

Mr. William Woodward said it was satisfactory to find that the Institute numbered among its Fellows a gentleman who was prepared to have taught the Greeks how to place the sculptures in the Parthenon. It was still more gratifying to find that so distinguished an architect had not overlooked the arts of the Greeks in his studies.

Mr. William Young exhibited photographs of the carvings that had been executed on the Municipal Buildings at Glasgow. This, the most Republican corporation in the United Kingdom, had cheerfully agreed to the adornment of this group of buildings with sculpture at a cost of £10,000, because he had taken care that with the exception of the substitution of a nobler subject for the principal pediment (which cost in execution an additional £1,500), every sculptured subject and feature was indicated on the original drawings for the buildings.

Mr. Conrad Dressler thought one great difficulty in the direction of progress in sculpture had not been touched upon—the abandonment of the system of apprenticeship. The pupils followed up the work of their masters, and thus, where the method of apprenticeship was still in vogue, we saw continuous progress.

Mr. A. Beresford Pite moved a vote of thanks to the readers of papers, and, in passing, referred with regret to the inappropriate position in which Alfred Stevens's Wellington Monument was placed in St. Paul's Cathedral.

Mr. R. Phene Spiers, in seconding the motion, remarked that at Paris the students for the Grand Prix de Rome, an architect, a sculptor, and a painter in each year, lived together in that city, and thus, when in after-life they were entrusted, as was the case, with important commissions from the Government, they learned to work in co-operation. In the Ecole des Beaux Arts in Paris, the students in all these branches also worked and studied side by side.

Mr. Pomeroy pointed out that the apprenticeship-system had not died out among architectural students.

Mr. W. White, F.S.A., Mr. Stephen Webb, and Mr. Pinker having spoken,

The President put the vote of thanks, which was carried with applause, and briefly acknowledged by each of the three readers of papers.

PRICES.—XXIV.*

(All Prices Include Profit).

JOINER (*continued*).

WINDOW BOARDS AND LININGS (INCLUDING BACKINGS).

		£	s.	d.
⅜in. wrot. deal lining, tongued at angles	per foot super.	0	0	5½
Ditto ditto tongued to frame	ditto	0	0	6½
Ditto ditto ditto on splay	ditto	0	0	6½
1in. wrot. deal lining, tongued at angles	ditto	0	0	6
Ditto ditto tongued to frame	ditto	0	0	7
Ditto ditto ditto on splay	ditto	0	0	7
1¼in. wrot. deal lining, tongued at angles	ditto	0	0	6½
Ditto ditto tongued to frame	ditto	0	0	7½
Ditto ditto ditto on splay	ditto	0	0	7½
Add to either of the above if cross-tongued	ditto	0	0	1
1¼in. square framed and tongued at angles	ditto	0	0	8
Ditto ditto tongued to frames	ditto	0	0	9
Ditto ditto fixed on splay	ditto	0	0	9
Ditto ditto moulded	ditto	0	0	9
1½in. square framed and tongued at angles	ditto	0	0	9
Ditto ditto tongued to frames	ditto	0	0	10
Ditto ditto fixed on splay	ditto	0	0	10
Ditto ditto moulded	ditto	0	0	10
1in. rounded or moulded on edge, window board and bearers	ditto	0	0	6½
Ditto ditto cross-tongued	ditto	0	0	7½
Ditto ditto grooved to frame	ditto	0	0	7
1¼in. rounded or moulded on edge	ditto	0	0	7
Ditto ditto cross-tongued	ditto	0	0	8
Ditto ditto grooved to frame	ditto	0	0	7½
1½in. rounded or moulded on edge	ditto	0	0	8
Ditto ditto cross-tongued	ditto	0	0	9
Ditto ditto grooved to frame	ditto	0	0	8½
2in. rounded or moulded on edge	ditto	0	0	9
Ditto ditto cross-tongued	ditto	0	0	10
Ditto ditto grooved to frame	ditto	0	0	9½
1in. scotia or other moulding, tongued in under board	ditto	0	0	1
1¼in. ditto ditto ditto	ditto	0	0	1½
1½in. ditto ditto ditto	ditto	0	0	1½
Ends of scotia return moulded	each	0	0	2
Ditto of edge of window board	ditto	0	0	3
Notchings	ditto	0	0	3

BACKS, ELBOWS, AND SOFFITS.

⅜in. wrought deal soffit	per foot super.	0	0	6
Ditto ditto ditto keyed on back	ditto	0	0	8
1in. wrought deal soffit	ditto	0	0	7
Ditto ditto ditto keyed	ditto	0	0	9
1¼in. wrought deal soffit	ditto	0	0	7½
Ditto ditto ditto keyed	ditto	0	0	9½
1½in. wrought deal soffit	ditto	0	0	8
Ditto ditto ditto keyed	ditto	0	0	10
1in. square framed soffit	ditto	0	0	10
Ditto moulded	ditto	0	0	11
Ditto bead butt	ditto	0	0	11
Ditto ditto flush	ditto	0	1	0
Ditto bolection moulded	ditto	0	1	0
Ditto stop chamfered, plain stops	ditto	0	1	2
1¼in. square framed soffit	ditto	0	0	11
Ditto moulded	ditto	0	1	0
Ditto bead butt	ditto	0	1	0
Ditto ditto flush	ditto	0	1	1
Ditto bolection moulded	ditto	0	1	1
Ditto stop chamfered	ditto	0	1	3
Add if tongued and grooved to frame	ditto	0	0	1
Add if fixed on splay	ditto	0	0	1
1½in. square framed soffit, circular to segment head	ditto	0	1	8
Ditto moulded	ditto	0	1	10
Ditto bead butt	ditto	0	1	10
Ditto ditto flush	ditto	0	1	11
Ditto bolection moulded	ditto	0	1	11
Ditto stop chamfered	ditto	0	2	0
1¾in. square framed soffit, circular to semi head	ditto	0	2	6
Ditto moulded	ditto	0	2	8
Ditto bead butt	ditto	0	2	8
Ditto ditto flush	ditto	0	2	9
Ditto bolection moulded	ditto	0	2	9
Ditto stop chamfered	ditto	0	2	10
1¾in. square framed soffit	ditto	0	1	0
Ditto moulded	ditto	0	1	1
Ditto bead butt	ditto	0	1	1
Ditto ditto flush	ditto	0	1	2
Ditto bolection moulded	ditto	0	1	2
Ditto stop chamfered	ditto	0	1	4
Ditto raised panels	ditto	0	1	6
Ditto linen panels	ditto	0	1	6
Ditto ends of linen panels carved	each	0	2	0
1¾in. square framed circular to segment head	per foot super.	0	2	0

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		£	s.	d.
1½in. moulded	per foot super.	0	2	2
Ditto ditto (bolection)	ditto	0	2	4
Ditto bead butt	ditto	0	2	2
Ditto ditto flush	ditto	0	2	4
Ditto stop chamfered	ditto	0	2	4
Ditto raised panels	ditto	0	2	6
Ditto linen panels	ditto	0	2	6
2½in. square framed circular to semi head	ditto	0	3	0
Ditto moulded	ditto	0	3	2
Ditto ditto (bolection)	ditto	0	3	4
Ditto bead butt	ditto	0	3	2
Ditto ditto flush	ditto	0	3	4
Ditto stop chamfered	ditto	0	3	4
Ditto raised panels	ditto	0	3	6
Ditto linen panels	ditto	0	3	6
1in. wrought deal backs and elbows, square framed	ditto	0	0	8
Ditto ditto ditto small panels	ditto	0	0	10
1¼in. ditto backs and elbows	ditto	0	0	9
Ditto ditto ditto small panels	ditto	0	0	11
1¼in. ditto backs and elbows	ditto	0	0	10
Ditto ditto ditto small panels	ditto	0	1	0
2in. ditto backs and elbows	ditto	0	1	0
Ditto ditto ditto small panels	ditto	0	1	2
1in. bead butt backs and elbows	ditto	0	0	9
Ditto ditto ditto small panels	ditto	0	0	11
1¼in. ditto backs and elbows	ditto	0	0	10
Ditto ditto ditto small panels	ditto	0	1	0
1¼in. ditto backs and elbows	ditto	0	0	11
Ditto ditto ditto small panels	ditto	0	1	1
2in. ditto backs and elbows	ditto	0	1	0
Ditto ditto ditto small panels	ditto	0	1	2
1in. bead flush backs and elbows	ditto	0	0	10
Ditto ditto ditto small panels	ditto	0	1	0
1¼in. ditto backs and elbows	ditto	0	0	11
Ditto ditto ditto small panels	ditto	0	1	1
1¼in. ditto backs and elbows	ditto	0	1	0
Ditto ditto ditto small panels	ditto	0	1	2
2in. ditto backs and elbows	ditto	0	1	1
Ditto ditto ditto small panels	ditto	0	1	3
1in. moulded backs and elbows	ditto	0	0	9
Ditto ditto ditto small panels	ditto	0	0	11
1¼in. ditto backs and elbows	ditto	0	0	10
Ditto ditto ditto small panels	ditto	0	1	0
1¼in. ditto backs and elbows	ditto	0	0	11
Ditto ditto ditto small panels	ditto	0	1	1
2in. ditto backs and elbows	ditto	0	1	0
Ditto ditto ditto small panels	ditto	0	1	2
1in. bolection moulded backs and elbows	ditto	0	0	10
Ditto ditto ditto small panels	ditto	0	1	0
1¼in. ditto backs and elbows	ditto	0	0	11
Ditto ditto ditto small panels	ditto	0	1	1
1¼in. ditto backs and elbows	ditto	0	1	0
Ditto ditto ditto small panels	ditto	0	1	2
2in. ditto backs and elbows	ditto	0	1	1
Ditto ditto ditto small panels	ditto	0	1	3
1in. stop chamfered backs and elbows	ditto	0	1	0
Ditto ditto ditto small panels	ditto	0	1	2
1¼in. ditto backs and elbows	ditto	0	1	1
Ditto ditto ditto small panels	ditto	0	1	3
1¼in. ditto backs and elbows	ditto	0	1	2
Ditto ditto ditto small panels	ditto	0	1	4
2in. ditto backs and elbows	ditto	0	1	3
Ditto ditto ditto small panels	ditto	0	1	5
1¼in. raised panels backs and elbows	ditto	0	1	4
Ditto ditto ditto small panels	ditto	0	1	8
2in. ditto backs and elbows	ditto	0	1	5
Ditto ditto ditto small panels	ditto	0	1	9
1¼in. linen panels backs and elbows	ditto	0	1	4
Ditto ditto ditto small panels	ditto	0	1	8
2in. ditto backs and elbows	ditto	0	1	5
Ditto ditto ditto small panels	ditto	0	1	9
(Where the elbows are measured separately, they must be priced at a higher rate.)				
1in. beaded capping 2½in. wide	per foot run	0	0	2
1½in. ditto or moulded ditto ditto	ditto	0	0	2½
1½in. ditto ditto	ditto	0	0	3
Add if tongued to frame		0	0	1
1in. elbow caps	each	0	0	6
1¼in. ditto	ditto	0	0	7
1½in. ditto	ditto	0	0	8
For circular elbows, &c., price at twice the straight for slow sweep, and three times for quick.				

GROUNDS.

¾in. deal-framed grounds, bevelled on edges for plastering	per foot super.	0	0	5½
1in. ditto	ditto	0	0	6
1¼in. ditto	ditto	0	0	7
1½in. ditto	ditto	0	0	8
¾in. ditto to segment head	ditto	0	0	9
1in. ditto ditto	ditto	0	0	10
1¼in. ditto ditto	ditto	0	0	11
1½in. ditto ditto	ditto	0	1	0
¾in. ditto to semi head	ditto	0	1	0
1in. ditto ditto	ditto	0	1	1
1¼in. ditto ditto	ditto	0	1	2
1½in. ditto ditto	ditto	0	1	3
¾in. skeleton-framed grounds for pilasters	ditto	0	0	6
1in. ditto	ditto	0	0	6½
1¼in. ditto	ditto	0	0	7
1½in. ditto	ditto	0	0	7½
No labours are included to these framed pilaster grounds, such as mitring, &c.				

BOXINGS TO WINDOWS.

1in. deal framed rebated and beaded	ditto	0	0	8
Ditto deal framed splayed	ditto	0	0	9
Ditto ditto circular on plan, flat sweep	ditto	0	1	4
Ditto ditto ditto quick sweep	ditto	0	2	0
1¼in. deal framed rebated and beaded	ditto	0	0	9
Ditto deal framed splayed	ditto	0	0	10
Ditto ditto circular on plan, flat sweep	ditto	0	1	6
Ditto ditto ditto quick sweep	ditto	0	2	3
1¼in. deal framed rebated and beaded	ditto	0	0	10
1½in. deal framed splayed	per foot super.	0	0	11
Ditto ditto circular on plan, flat sweep	ditto	0	1	8
Ditto ditto ditto quick sweep	ditto	0	2	6
1in. deal boxing for sliding shutters, single hung, with pulley stiles. beads, grooves, &c	per foot run.	0	1	2
Ditto double hung	ditto	0	1	4
1½in. ditto single hung	ditto	0	1	3
Ditto ditto double ditto	ditto	0	1	5

BACK LININGS.

1in. deal, wrot and fixed	per foot super.	0	0	6⅜
Ditto keyed at back	ditto	0	0	8½
Ditto square framed and tongued	ditto	0	0	8½
Ditto bead butt	ditto	0	0	9½
Ditto ditto flush	ditto	0	0	10½
1¼in. deal framed	ditto	0	0	9
Ditto bead butt	ditto	0	0	10
Ditto ditto flush	ditto	0	0	11
Add if fixed on splay	ditto	0	0	1

INSIDE OR BOXING SHUTTERS.

1in. deal clamped	ditto	0	0	8
1in. ditto square framed	ditto	0	0	9
Ditto ditto moulded one side	ditto	0	0	10
Ditto ditto ditto both sides	ditto	0	0	11
Ditto ditto bead butt and square	ditto	0	0	10
Ditto ditto ditto flush and ditto	ditto	0	0	11
Ditto ditto stop chamfered, plain stops	ditto	0	1	1
Ditto ditto ditto both sides	ditto	0	1	5
1¼in. ditto square framed	ditto	0	0	10
Ditto ditto moulded one side	ditto	0	0	11
Ditto ditto ditto two sides	ditto	0	1	0
Ditto ditto bead butt and square	ditto	0	0	11
Ditto ditto flush and ditto	ditto	0	1	0
Ditto ditto stop chamfered	ditto	0	1	2
Ditto ditto ditto two sides	ditto	0	1	6
1¼in. ditto square framed	ditto	0	0	11
Ditto ditto moulded one side	ditto	0	1	0
Ditto ditto ditto two sides	ditto	0	1	1
Ditto ditto bead butt and square	ditto	0	1	0
Ditto ditto flush and ditto	ditto	0	1	1
Ditto ditto stop chamfered	ditto	0	1	3
Ditto ditto ditto two sides	ditto	0	1	7
Rebate to joints	per foot run	0	0	1
Bead to ditto	ditto	0	0	¾
Staff bead	ditto	0	0	1
Add if less than 9in. wide	ditto	0	0	2
Splayed edges	ditto	0	0	0½
Add for circular on plan, slow sweep, 100 per cent.				
Ditto to quick sweep, 200 per cent.				
Small flush reed mouldings in middle rail	each	0	0	9
Clearing pieces	per foot run	0	1	0
Blind rails	ditto	0	1	6

OUTSIDE WINDOW AND SHOP SHUTTERS.

1in. square framed	per foot run	0	0	9
1¼in. ditto	ditto	0	0	10
1½in. ditto	ditto	0	0	11
2in. ditto	ditto	0	1	0
1in. bead butt and square	ditto	0	0	10
1¼in. ditto ditto	ditto	0	0	11
1½in. ditto ditto	ditto	0	1	0
2in. ditto ditto	ditto	0	1	1
1in. bead flush and square	ditto	0	0	11
1¼in. ditto ditto	ditto	0	1	0
1½in. ditto ditto	ditto	0	1	1
2in. ditto ditto	ditto	0	1	2
1in. moulded and square	ditto	0	0	10
1¼in. ditto ditto	ditto	0	0	11
1½in. ditto ditto	ditto	0	1	0
2in. ditto ditto	ditto	0	1	1
1in. moulded both sides	ditto	0	0	11
1¼in. ditto ditto	ditto	0	1	0
1½in. ditto ditto	ditto	0	1	1
2in. ditto ditto	ditto	0	1	2
1in. stop chamfered plain stops	ditto	0	1	1
1¼in. ditto ditto	ditto	0	1	2
1½in. ditto ditto	ditto	0	1	3
2in. ditto ditto	ditto	0	1	4
1in. ditto two sides	ditto	0	1	5
1¼in. ditto ditto	ditto	0	1	6
1½in. ditto ditto	ditto	0	1	7
2in. ditto ditto	ditto	0	1	8
Add for circular on plan as before.				
If less than 9in. wide, add 25 per cent.				
Groove for shutters 1 by 1 or 1 by 1½	ditto	0	0	1
Ditto 1½ by 2	ditto	0	0	1½
Rebate	ditto	0	0	1
Bead	ditto	0	0	0¾
Staff bead	ditto	0	0	1
2 by 2½ grooved and chamfered fillet, screwed on	ditto	0	0	2½
Ends of ditto return chamfered	each	0	0	2

SLIDING SHUTTERS, INCLUDING LINES AND WEIGHTS.

1in. square framed, double hung	per foot super.	0	0	11
1½in. ditto ditto	ditto	0	1	0
1½in. ditto ditto	ditto	0	1	1
2in. ditto ditto	ditto	0	1	2
1in bead butt and square	ditto	0	1	0
1¼in. ditto ditto	ditto	0	1	1
1½in. ditto ditto	ditto	0	1	2
2in. ditto ditto	ditto	0	1	3
1in. bead flush and square	ditto	0	1	1
1¼in. ditto ditto	ditto	0	1	2
1½in. ditto ditto	ditto	0	1	3
2in. ditto ditto	ditto	0	1	4
1in. moulded and square	ditto	0	1	0
1¼in. ditto ditto	ditto	0	1	1
Ditto both sides	ditto	0	1	2
1½in ditto square	ditto	0	1	2
Ditto ditto both sides	ditto	0	1	3
2in. ditto and square	ditto	0	1	3
Ditto ditto both sides	ditto	0	1	4
1in. stop chamfered, plain stops.	ditto	0	1	3
Ditto ditto both sides	ditto	0	1	7
1½in. ditto plain stops	ditto	0	1	4
Ditto ditto both sides	ditto	0	1	8
1½in. ditto plain stops	ditto	0	1	5
Ditto ditto both sides	ditto	0	1	9
2in. stop chamfered, plain stops	per foot super.	0		
Ditto ditto both sides	ditto	0		
Add for lead weights where necessary		0		

PATENT REVOLVING SHUTTERS

fixed complete — attendance extra & making good.				
Clark, Bunnett, and Co.'s bevel wood and steel-lath revolving shutters	per foot super.	0		
Ditto to coil below	ditto	0		
Ditto convex-lath shutters	ditto	0		
Ditto mahogany, oak, or pitch pine	ditto	4s.		
Ditto steel self-coiling in one sheet	ditto	0		
Ditto flat-iron lath revolving shutters	ditto	0		
Ditto if with screw gear	ditto	0		
Ditto rectilinear or curvilinear iron-lath revolving shutter, with screw gearing	ditto	0		
Ditto Lenore Venetian revolving shutter	ditto	0		
Francis' patent revolving shutters, curvilinear iron-lath shutters	ditto	0		
Ditto corrugated steel	ditto	0		
Ditto convex lath wood, with steel bands	ditto	0		
Ditto for hinged wide-wood lath	ditto	0		
Ditto for hinged-lath, wood narrow	ditto	0		
Samuel Haskins' spring coiling revolving shutters, convex and bevel laths	ditto	0		
Ditto with wrought-iron hinges	ditto	0		
Ditto ditto ogee lath	ditto	0		
Add if mahogany or oak	ditto	0		
Steel corrugated shutter on horizontal spring rollers	ditto	0		
Rectilinear or flat-lath iron shutters, with screw gearing	ditto	0		
Curvilinear iron shutters for bankers and jewellers	ditto	0		
Wicket-gate lock and fastenings to wood shutters	each	2		
Ditto to iron shutters with lever lock	ditto	3		
Snoxell and Spencer's convex wood-lath revolving shutters, mounted on springs, with all brackets, fixtures, rollers, long arms, fastenings, fittings, &c., complete	per foot super.	0		
Ditto best balance-weight shutters, London School Board pattern	ditto	0		
Iron curvilinear lath shutters, including gearing, shafting, fittings, and fastenings	ditto	0		
Salmon, Barnes, and Co.'s yellow pine shutters, plain pattern	ditto	0		
Ditto reversible section, best quality	ditto	0		
Ditto corrugated both sides, selected quality	ditto	0		
Ditto curvilinear iron or steel shutters	ditto	0		
Wicket doors in wood shutters, including movable stiles, latch, and lock	ditto	1		
Ditto in iron ditto including ditto	ditto	3		
Bostwick patent steel folding gates and shutters	ditto	0		
Allow for locking stile		0		
Ditto cutting away and making good	ditto	0		
Ditto lock	ditto	0		
Window guards and grilles are made at the same				

DOORS AND WINDOW FRAMES.

3 by 4 deal, wrought, rebated and beaded and framed	per foot run	0		
Ditto pitch pine	ditto	0		
Ditto English oak	ditto	0		
Ditto mahogany	ditto	0		
Ditto walnut	ditto	0		
3 by 4½ deal	ditto	0		
Ditto pitch pine	ditto	0		
Ditto English oak	ditto	0		
Ditto mahogany	ditto	0		
Ditto walnut	ditto	0		
3 by 5 deal	ditto	0		
Ditto pitch pine	ditto	0		
Ditto English oak	ditto	0		
Ditto mahogany	ditto	0		
Ditto walnut	ditto	0		
4 by 4½ deal	ditto	0		
Ditto pitch pine	ditto	0		
Ditto English oak	ditto	0		
Ditto mahogany	ditto	0		
Ditto walnut	ditto	0		
4 by 5 deal	ditto	0		
Ditto pitch pine	ditto	0		
Ditto English oak	ditto	0		
Ditto mahogany	ditto	0		
Ditto walnut	ditto	0		
4½ by 5 deal	ditto	0		
Ditto pitch pine	ditto	0		
Ditto English oak	ditto	0		
Ditto mahogany	ditto	0		
Ditto walnut	ditto	0		
4½ by 6 deal	ditto	0		
Ditto pitch pine	ditto	0		
Ditto English oak	ditto	0		
Ditto mahogany	ditto	0		
Ditto walnut	ditto	0		
Add for rebating in deal	ditto	0		
Ditto hard wood	ditto	0		
Add for mouldings in deal	ditto	0		
Ditto hardwood	ditto	0		
Ditto beads in deal	ditto	0		
Ditto hardwood	ditto	0		
Handrail, screws, and joints in deal	ditto	0		
Ditto hardwood	ditto	0		

WAYSIDE NOTES.

AM sorry to see that the old "Red Hall," at Bourn, Lincolnshire, is likely to be de-oyed. Apart from its historical interest as traditional birthplace of the Gunpowder Plot, building is one of the finest remaining speci-ns of red-brick Elizabethan architecture. ie would-be destroyers are the Great Northern ilway Company, who are forming a new line m Bourn to Saxby. The Red Hall stands in way of the railway as planned, and has been sequently doomed to destruction. It is said t a number of influential residents in Lin-nshire have united in petitioning the Com-ny to divert their line, and spare the building; t I rather fear that neither the memory of the e Mr. Guy Fawkes nor the requisition of nty families will induce the directors of a lway company to alter their arrangements for sake of picturesque old architecture or torical associations. My hope is that it may otherwise, for we can ill afford to lose speci-ns of the style of this long-time home of the gby family. And, after all, it is not as if we re in the Russia of years back, and the then r, after his wont, had drawn a ruled line on map from end to end of the proposed rail-y, as a route from which the engineers might erge at their peril.

The inhabitants of the town or village of rington—which may be located by readers sessing a greater fund of geographical infor-tion, and more time for searching maps and ctories, than myself—were reminded, on nday last, of the saying that "Gothic archi-ure never sleeps." A considerable portion he clerestory of the old church of this town village, dedicated to All Saints, and, withal, ed to be beautiful, fell with a crash on to the f of the south-east aisle. A stone in time ld here have saved nine, or more, and timely ration would have done away with the essity for restoration. Not that those having care of the building neglected their duties. ore the disaster, the vicar had contemplated ting his parishioners and the churchmen of district to assist in forming a fund for re-ation purposes, as the church was in many s in a dilapidated condition. Wheresoever rington may be situated, I wish well of any rts to repair the damage of Monday.

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ortune, in the shape of funds, favours the k of restoration and improvement at Peter-ugh Cathedral. At a recent meeting of the oration committee, Dean Argles offered to five hundred pounds towards the removal of organ to the triforium, and the purchase of a ll organ for use during the reconstruction of greater instrument. Stalls for the choir also accepted from the Freemasons of Eng-, the Corporation of Peterborough, and Mr. s, the chapter clerk; and Mrs. Rigg, hter of the late Archdeacon Davys, has pro-d a new litany-desk.

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attended the reading of Mr. Wilson's very esting paper on the late John Sedding. It a pleasant and entertaining, while serious instructive, discourse, adding to our store of wledge of the life and ways of the deceased itect. The selection of drawings and hes—Sedding's own handiwork, for the part—added greatly to the value of the r, which was voted excellent. Mr. Wilson's views as to what an architect should be ed generally to go down with the assembled bers of the A.A., although so radical were mendments proposed in the life of the indi-al in question, that some of the recommenda-seemed a little too trying even for the most usiastic. On the whole, however, the prin-s enunciated seemed to be well received, fancied I saw the younger members enough, ing visibly with high architectural enthu-. Well, perhaps they may be allowed to nd drink of such nourishment, for to morrow will face the sterner realities of life, and out why these principles don't work in ice.

. Wilson appears to be a believer in self- and as such was not over-complimentary to ew organisation of the Association. But it sible to believe in the virtue of self-help t the same time appreciate the labours of the who have striven to increase the power of the Association as an educational body. To the blunt assertion that the Association and everything and everyone connected with it was "all wrong," most temperate replies were made, the expressions of more than one speaker in the subsequent discussion being of the tenor of the man of Macedonia in St. Paul's vision—"Come over and help us." And this is the cry of many just now, when men are standing outside the ranks of the architectural societies and bewailing the the times and manners until one cannot blame the public—ignorant of the import of the hair-splitting arguments and failing to comprehend the causes of dispute—if they imagine the architectural world to be one raving Bedlam where every man's hand is against his brother.

In a recent issue, the *St. James's Gazette* says:—"The Oxford undergraduate, on being introduced to Pass Moderations, is invited to decide whether logic is a science or an art, and after puzzling his brains over the conundrum, he is politely informed that it is both." The *St. James's* says "the same solution may be suggested to those gentlemen who seem unable to decide whether they ought to regard architecture as an art or a profession," and incidentally lets us see the rational view of the public with regard to the question in debate when it states "that there is an artistic side to architecture may be admitted even in these days; but when roofs collapse and walls tumble in, we realise the desirability of having architects who know something of building."

A good number of *A.A. Notes* for this month, though stuffed full of the "high-falutin'" Architecture with the big A, and Architect with a still more bloated initial letter confronts us on every page. Mr. Fred M. Simpson has written much good sense for the Association's journal, and one is sorry to find he has been engaged on a wholly illogical article concerning Architecture and Architects, and deprecating the practice of certain branches of professional business, of which, in the same dip of ink, he writes:—"If ignorant about them he may often land himself and his clients in difficulties" (!). Mr. E. P. Warren writes also of Architects, and of that Architecture which "is the first, most necessary, most dominant, and comprehensive of the fine arts; counting as its finest flowers and noblest adornments, the achievements of the painter and sculptor"; while Mr. Reginald Blomfield writes: "The only chance now left for it [*i.e.*, architecture], is that the young men should definitely break with professionalism, and should refuse any longer to prostitute architecture," and brings before our notice the "craftsman architect"; while the whole import of the letter is to decry views in the Address of the President of the Association. In able defence of these, however, Mr. Baggallay writes in the same number, and incidentally makes the sensible remark on the question,—"Architecture—a Profession or an Art?"—that he regards it as one merely of names and definitions, which cannot practically affect the study or practice of architecture, and which is unworthy of the consideration of those who, if they will only give their attention to becoming good architects, can afford to leave it to others to define the nature of their occupation."

What manner of man is the "craftsman architect"? Those who attended last Friday at the Architectural Association may think they know—for the moment, I thought so myself; but, on further reflection, am bound to confess my inability to grasp the meaning of the term. Mr. Wilson spoke of architects teaching each of their pupils some trade or "craft," as the cant phrase goes, but surely this is not all the necessary qualifications for the "craftsman architect." What an assortment of architects we are getting, to be sure! There is our old friend the "artist architect," or "art architect," and—a contemporary production—the "practical architect." Then there is that darling of the public, the "church architect," who used to rank next to the gods; but, since the artist architect came upon the scene, he has had to "take a back seat," as a person who cribs old crockets, copies ancient moulds like a machine, and generally reproduces everything while producing nothing. In the "craftsman architect," however, we have a new friend, though I rather fancy he is only an old friend with a new face—the "artist architect" with a mask on. I trust this new apparition will prove neither a wolf in sheep's clothing, nor an ass in a lion's skin. It has come forward boldly enough to make us suspect the former is the case, while the noise it makes creates suspicions of the latter. Anyhow, I don't think it will eat us all up just yet; but that the good old commonsense architect will continue to plod along as heretofore, making no noise, and *doing all the work*.

Registration is to the front. The Plumbers' Company have felt their feet firmly enough in connection with their most laudable scheme of registration to apply to Parliament for powers similar to those sought by the architectural registrationists, and if the approval of those legislators who were present at the Plumbers' banquet on Tuesday is any index to the mind of Parliament, the company will speedily get what it asks for. The present master of the Plumbers' Company, Mr. W. H. Bishop, is well carrying forward the scheme that was commenced under the régime of Mr. George Shaw, and his wardens are well supporting him. It goes without saying, of course, that the moving spirit all along has been Mr. W. R. E. Coles, the courteous clerk of the company, who must have travelled some thousands of miles, and worked night and day, during the past three years, to make the idea he has so much at heart a success. I fancied, on Tuesday night, a faint expression of regret stole over Mr. MacVicar Anderson's face as he sat at the banquet, that the Fates had not given the Institute another Mr. Coles, and that, after all, the plumbers were going to leave architects far in the rear. Mr. Wreghitt Connon's face, on the contrary, seemed to brighten at the announcement of the proposed application to Parliament. It ought certainly to encourage him in his sensible advocacy of the policy as regards architects that the Institute has had neither the wisdom nor the courage to initiate. Goth.

CHIPS.

Sir John Gilbert, R.A., has presented the whole of his sketches, studies, and drawings to the Royal Academy. They are mounted and bound in volumes, and will be placed on permanent exhibition at the Academy's Rooms, Burlington House.

The contract for the York sewerage scheme was again considered at a special meeting of the corporation of that city held on Wednesday evening. The council were recommended to accept the tender of Mr. Abram Kellett, of Ealing, for the completion of Sewerage contract No. 2, for £75,830 16s. 4d. (the amount of his original tender), subject to the deduction of an amount to be agreed upon between Mr. Kellett and Mr. Mansergh, C.E., in respect of the work executed by Mr. Bottoms. The resolution was adopted.

Mr. W. B. Morgan, the borough surveyor of Weymouth, and late of Southampton, was on Tuesday week the recipient of a testimonial from the mayor, corporation, officials, and other friends, who took advantage of his recent marriage to present him with a gold watch, bearing a suitable inscription.

Mr. Henry James Castle, A.M.Inst.C.E., F.S.I., late Professor of Surveying and Engineering at King's College, London, died at Brighton on Friday last.

The restoration of the Hotel de Ville at Amboise has been completed after ten years' labour, and at a cost to the French Government of £12,000.

The Bishop of Gloucester and Bristol was presented on Monday with a pastoral staff, jewelled mitre, and magnificent cope of diapered gold satin by the laity of Bristol, the presentation being made at the Chapter House by Sir Charles Wathen.

A considerable portion of the clerestory of the parish church of All Saints, Barrington, Cambs., fell on Monday on to the roof of the south aisle. The sacred edifice is in many parts in a dilapidated condition, and efforts were about to be made to organise a restoration fund.

Permission has been granted by the Egyptian Board of Public Works to Mr. Flinders Petrie to excavate this winter at Tel-el-Amarna, and he has left Cairo in order to make preparations for beginning his work.

The foundation-stone of a new school at South Morningside, about to be erected for the St. Cuthberth's and Dean School Board, near Edinburgh, was laid on Saturday. The building will accommodate 603 children, and will cost exclusive of site £8,900. Mr. Robert Wilson, of Edinburgh, is the architect.

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THE LOGGIA OF RAPHAEL, AT THE VATICAN, ROME.—THE WATER-GATE, HOORN, HOLLAND.—BENTHALL HALL, AND THE PRIOR'S HOUSE, MUCH WENLOCK.—DUNLOE, WEMYSS BAY.—FULLER'S COACH FACTORY, BRISTOL.—NEW BANK AND SUITES OF OFFICES, GOOLE.—SCHOOLS, PRIORY ROAD, HASTINGS.—SCREEN AT THE OLD BARGE INN, NORWICH.—HOUSE NEAR DOUGLAS, ISLE OF MAN.—A CARVED CHEST.—BUSINESS PREMISES, BRADFORD AVENUE, RED CROSS STREET.

Our Illustrations.

LOGGIA OF RAPHAEL, AT THE VATICAN, ROME.

We published the second tier of this magnificent loggia at Rome in our issue for Nov. 9th, 1888, with an account of the decorations and paintings which it contains by the great master and his pupils. To-day we give a photographic view of the lower stage. Sig. Mantovani restored the building a few years ago, and renovated the arabesques and stuccoes, which were originally executed by Giovanni de Udine, from Raphael's cartoons. In the vaults are the series of paintings known as "Raphael's Bible," representing some scenes from the Holy Scriptures. In the painting of these, several of Raphael's principal scholars were engaged. A detailed description of them will be found in J. P. P. Chaffard's "New Description of the Vatican," a work on which he spent sixteen years.

THE WATER-GATE OF HOORN, N. HOLLAND.

The famous Water-gate of Hoorn is the most picturesque building of the most interesting of the dead cities of the Zuyder Zee. Architecturally, Hoorn may be said to be unique, with its many steep-gabled red-brick fronts, beautifully toned with age. The gate is washed by the waters of the Zuyder Zee, to which it presents a circular front, built of a whitish stone, which on the east side and quay front is used but very sparingly in bands, corbels, and voussoirs. The quay front is the most ornate, and is very pleasing in composition, the small staircase turret lending much picturesqueness to the otherwise rather lofty structure. The upper part is corbelled over the lower by the trefoiled corbel table, above which are a small niche and two deeply-recessed windows, with the lower lights shuttered. At the level of the eaves is a rich moulded band of panelling in brick, and in the centre is a semicircular outlook bay over, on which stands a lioness supporting a shield with the coat of arms of the city—a horn. Under the cornice, on a stone strip with scrolled ends, are the two dates 1532 and 1631, the latter the date of alterations and additions, presumably the clock turret, the details of which are quite different from the other work. The jetty front has an octagonal base standing on a sub-base, which on plan is part of a 16-sided figure, giving the opportunity of using beautifully-moulded stops and splays. The form returns to the octagon again in the roof, which has a nicely-shaped bell-cast curve from the eaves. The ornament on this front is confined to the brick corbel table, with many musketry holes and a row of shuttered windows under the eaves. In the centre is another small outlook bay, from which and the adjoining windows many eager eyes must have looked in the time of Spanish troubles, and the defeat of the Spanish admiral, De Bossu, off the coast, when the battle was witnessed by the inhabitants. The stonework of this front abruptly joins the brickwork of the east side, stone bands being continued round to the turret. On the centre the arms of the city are again displayed. The roof is remarkably steep, and is slated with grey scale slating. Above rises the lofty clock turret, with its one-handed clock and peal of bells above, all surmounted by a wrought-iron finial with a hammered-iron ship as a vane. Farther to the east is another water-gate; but it is much less interesting than this one, though not by any means the least significant of the antiquities of Hoorn, which yet bear marked evidence of the past glories and commercial prosperity of the city, the birthplace of Schonten, the ablest mariner of his day, and where the fleet was built with which De Ruyter sailed up the Thames in 1667 and wrecked Sheerness.

Robt. B. Pratt, A.R.I.B.A.

BENTHALL HALL AND MUCH WENLOCK PRIORY, SHROPSHIRE.

These two photographs are from the series taken by Mr. John L. Robinson, A.R.H.A., of Dublin, during the recent excursion of the Architectural Association into Shropshire round about Shrewsbury. We published at the time a full account of the various buildings visited, and we gave several drawings and sketches illustrative of their detail.* Benthall Hall was not then represented, and so we give a view to-day. The chief feature in the house is the long narrow gallery on the first floor, extending along the whole façade, and the three big bays run into it. The square one forming the entry seems to be an addition over the porch soon after the house was erected. Its cornice suggests this to have been the case. The house has some very beautiful works of art in it, and a good oak staircase. Mr. Bateman, an architect and painter, lives in it now; but Mr. Maw resided there some years ago, and put down some tiles which go far to spoil the effect of the fine old hall. The plan of the house is sacrificed very much to the gallery before alluded to.—The Prior's House at Much Wenlock, shown by the lower view, is a delightful old place in a splendid condition, unrestored and well cared for, forming, as it does, part of the country seat of Mr. C. G. Milnes-Gaskell, M.P., who has taken every precaution to prevent damage being done to the building, either by time, visitors, or by restorationists. The arcade leading to the two floors of the building extends the whole length of the elevation, and of late years has been glazed to keep out the weather. It is constructed of a rich red stone, and is delightful in colour, harmonising well with the lichen-covered Broseley tiles of the roof. A plan of the building will be found in the Building News for August 14th last, and in our issue for August 7th a detail drawing was given of the Arcade, now shown by Mr. Robinson's capital photograph in perspective. These camera pictures taken year by year supply a most valued record of one of the most useful annual outings which it is our pleasure to describe as the time comes round.

DUNLOE, WEMYSS BAY, N.B.

This Scotch house on the Clyde has lately been erected from the designs of Messrs. Honeyman and Keppie, architects, of Glasgow, and we give two plans and a view from the garden in our pages to-day. The original part of the building is shown by hatched lines on the plans. Inside, the house has some rich work introduced, with chimneypieces in Gifnock and Corshill stone to the dining-room. The owner is Mr. N. B. Stewart.

FULLER'S COACH FACTORY, BRISTOL.

The history of Messrs. Fuller's works takes us back to the days before George III. was king, when one Walter Wellish applied for and obtained from the Dean and Chapter of Bristol certain lands, situate on what was then known as the Bishop's Park, for the purpose of enlarging a coach factory which was then in existence. In 1815 the business came into the hands of the present firm, Messrs. Fuller and Co., who had their premises on both sides of the road; on the south side are the show-rooms and offices, and on the north side the manufactory, which originally occupied only a portion of the site now being covered by the new buildings, which will provide accommodation for the various departments of the trade, and will, when erected, be one of the largest and best adapted. The contract for the new building is being carried out by Mr. Krauss of Bristol, from the designs, and under the superintendence of Mr. Edward Gabriel (Edmeston and Gabriel). The lower portion of the front is in blue brick, and the whole of the rest in red pressed Cattybrook brick. The stucco-work in the gables is being executed by Mr. Gilbert Seale.

NEW BANK AND OFFICES, GOOLE, YORKS.

This new block of buildings, from the design of Mr. Henry Bell Thorp, architect, of Goole, has been erected for Messrs. Beckett and Company. The offices are intended for commercial use, and for the Navigation Company.

BOYS' SCHOOL, PRIORY ROAD, HASTINGS.

(See description and further illustration, on p. 811).

SCREEN AT THE OLD BARGE INN, NORWICH.

This house, which now bears the sign of the Old Barge Inn, was one of the old city houses, and the site has many associations. The building that originally stood here was called Meddey Inn, from Roger Midday, who purchased it from the Abbot and Canons of Woaburn in the beginning of Edward the Third's reign. William Midday, his son, sold it to William Clere, of Crinsbey, in 1335, and he rebuilt it, made it his city house, and parts of the present house belonged, doubtless, to the 14th century. It passed from William Clere into the hands of the Berfords, the Briggs, then the Elyses, and in 1544 James Marsham, grocer, left it to his wife Cicely, John his son, and his heirs. In 16[illegible] Nicolas Elliot had it, and from him it came into possession of the Cooks, who owned it in the century. It was probably about James Marsham's time that the screen was inserted, and it seems probable that it served as a dividing partition across what was originally the entrance hall, because close to the screen on the right hand from the street is an elaborate Pointed door of Late Decorated or Perpendicular work, which opens to a covered carriage way leading from King-street to the rear of the premises. The house is much altered and multilated; but there are some beautifully groined crypts underneath, probably the oldest portion of the house.

John S. Corder.

HOUSE NEAR DOUGLAS, ISLE OF MAN.

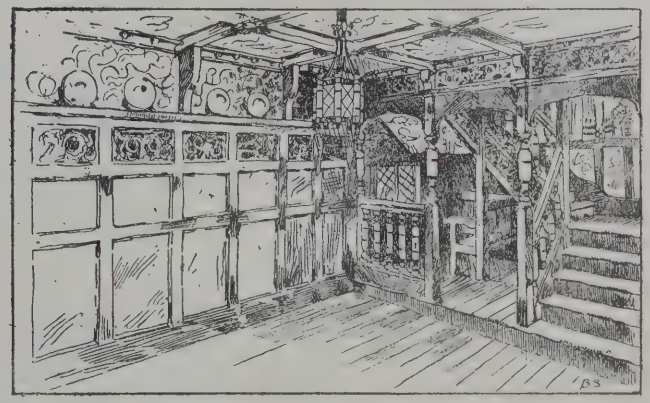
This house is to be shortly erected near Douglas. The walls to be built of local brick, the roof covered with red tiles, and the half-timber work forming panels visible in the interior as well as exterior of building. The front door to be painted white, with copper hinges, and carving in small panels painted in positive colours. There are five bedrooms and bath-room on the first floor, and an attic in the roof. The nursery has a panelled ceiling carried up into the roof. The estimated cost is £600.

The new recreation hall erected at Port Sunlight for Messrs. Lever Bros., and opened by Mr. Gladstone on Saturday, has been built from designs by Mr. W. Owen, of Warrington, Mr. A. Bleak being the contractor. It is Domestic English in style, and is seated for 750 persons, the dimensions being 80ft. by 50ft.

A woman named Hendra, who was injured by tripping over a fire-plug at Fulham, brought an action for damages against the Chelsea Waterworks Company. It was tried in the Queen's Bench Division on Saturday, when Mr. Justice Smith said the question was whether the plug was reasonably safe for persons passing along the street when placed there. The jury found in the affirmative, and his lordship gave judgment to the defendants.

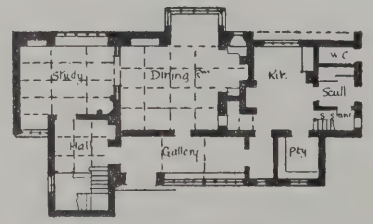
The memorial stone was laid on Saturday of the Roman Catholic Church, which is being erected at Kirkintilloch. The church is built of red freestone, rock-faced, and is in the form of a long nave, with a clerestory, and north and south aisles. The style is Late Perpendicular. All the internal work is of solid stone, and there are seven massive pillars carrying each arcade. The architect is Mr. Peter Paul Pugin, Westminster, London. The church will cost £5,000.

* See Building News, Aug. 7th, 14th, 21st, and 28th, 1891.



INTERIOR SKETCH — HALL & STAIRCASE

PROPOSED HOUSE
DOUGLAS · ISLE OF MAN



GROUND PLAN



M. H. B. SCOTT.
ARCHITECT

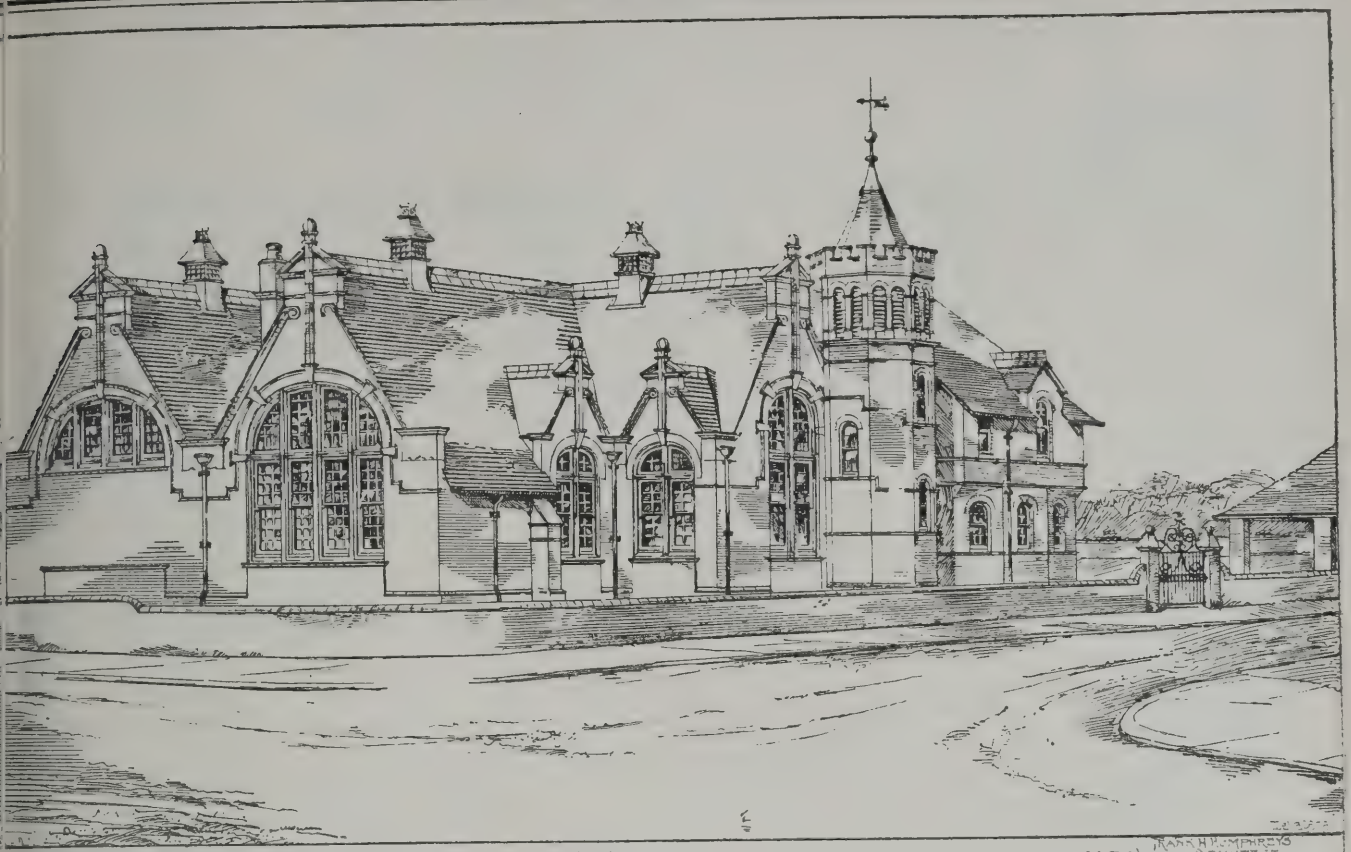


A CARVED CHEST.

THIS carved chest was sold at one of the recent sales, and we made a sketch of it. is not of a very artistic character; but it ked better than it does in the drawing. It s made of oak, and was better designed and structed than ornamented.

It has been necessary to demolish the famous leaning tower of Saragossa, which showed symptoms of ruin, although some thirty years since it had undergone restoration. It was constructed in 1504 as a clock tower, and was upwards of 250ft. in height. The inclination of the tower was so pronounced that its summit overlapped its base by nearly 6ft.

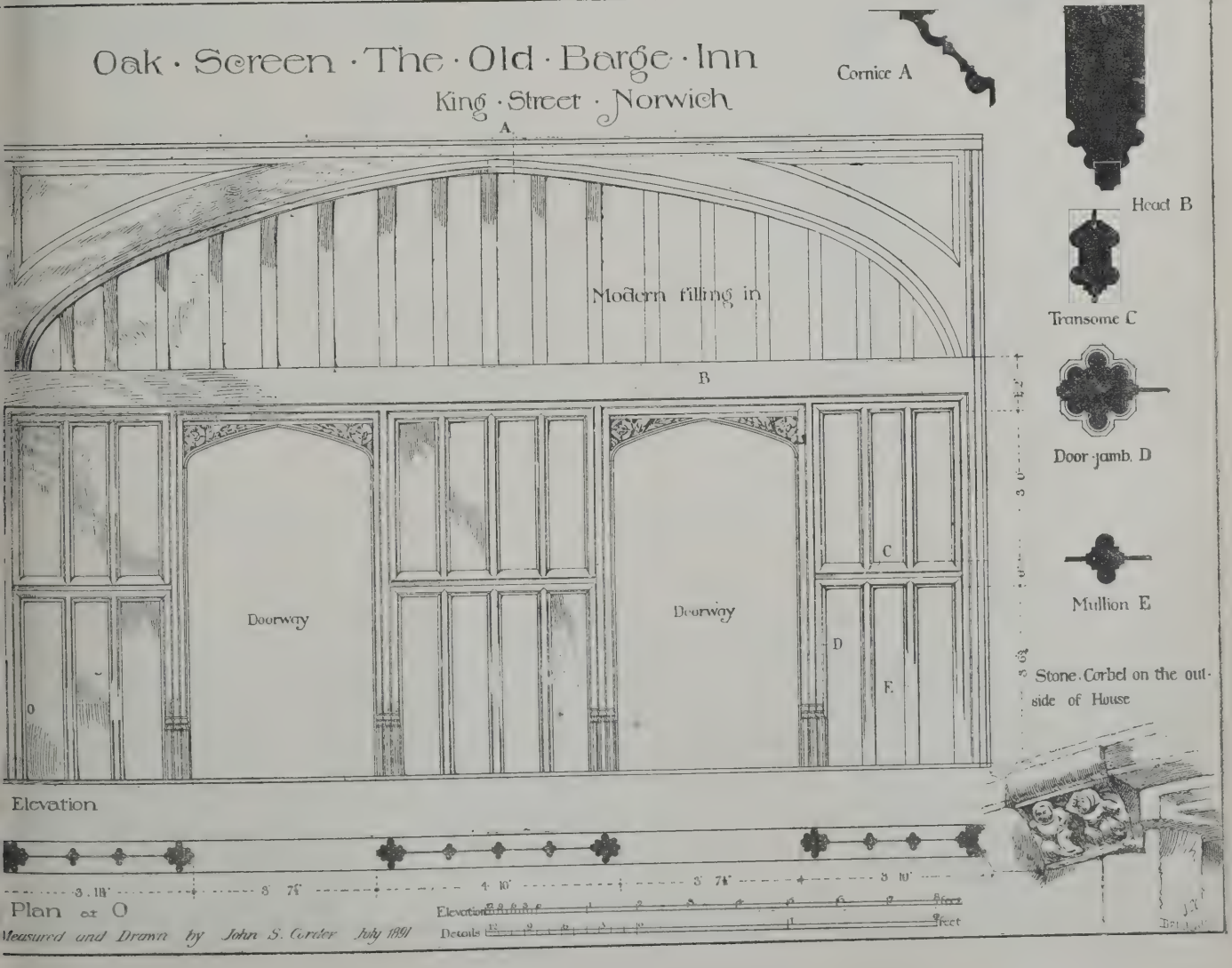
The London County Council, at its meeting on Tuesday, decided, after much discussion, to appoint a Public Health and Housing Committee to carry out the provisions of the Public Health Act (London), 1891, which comes into operation on January 1st next. An assistant medical officer of health is to be forthwith appointed at a salary of £500 a year.



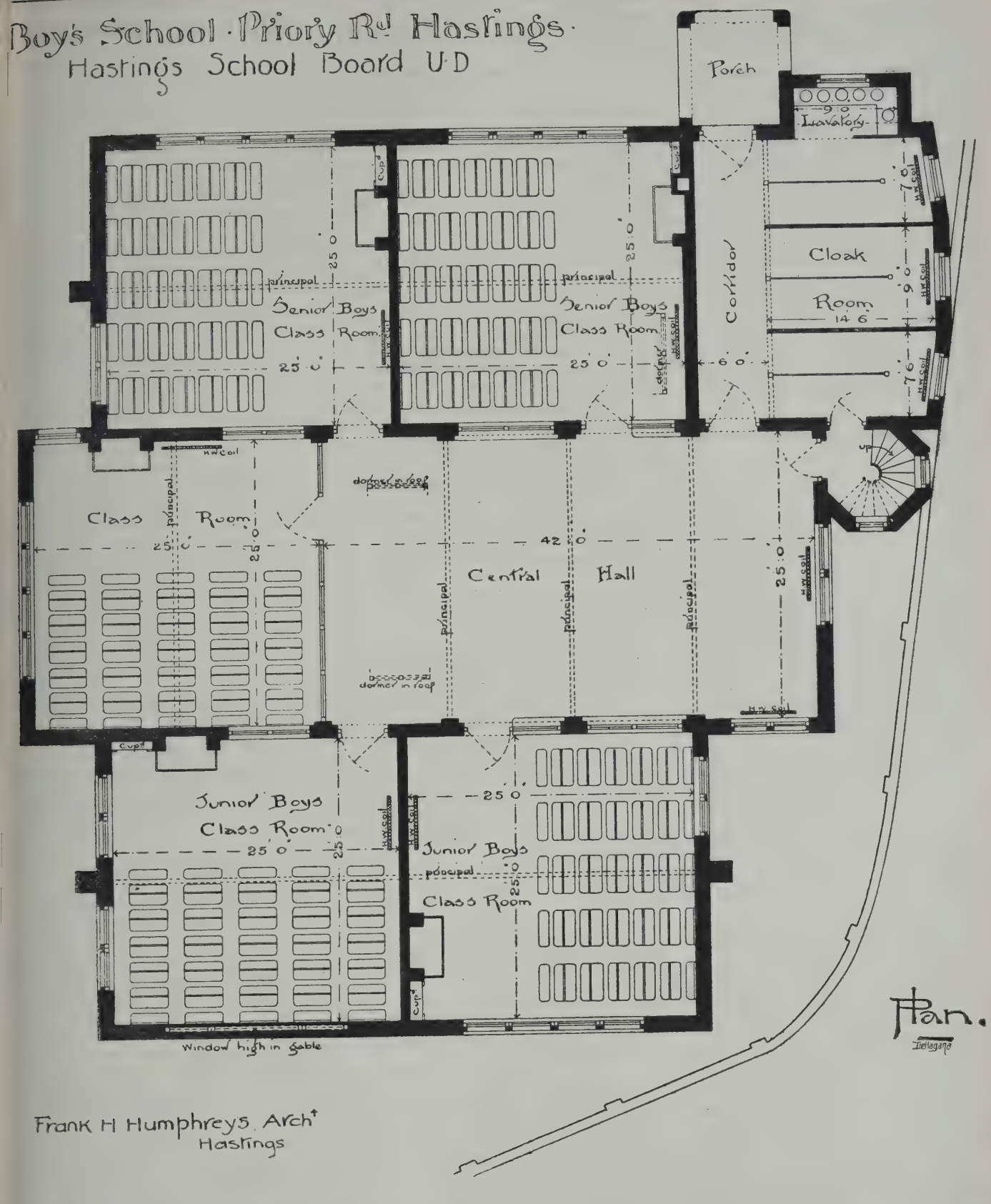
BOYS SCHOOL: PRIORY ROAD: HASTINGS: (HASTINGS SCHOOL BOARD: U.D.) MARK H. HUMPHREYS ARCHITECT HASTINGS

Oak · Screen · The · Old · Barge · Inn

King · Street · Norwich



Measured and Drawn by John S. Corder July 1891



SCHOOLS, PRIORY-ROAD, WEST HILL, HASTINGS.

THIS building, consisting of the boys' department of schools for the Hastings School Board U.D., with accommodation for 300 boys, was opened on September 18th last. It is planned on the principle of a central hall, with five classrooms of equal dimension, and accommodating 60 boys each, one being formed by partitioning off a portion of the central hall, which partition can be removed and the size of the hall increased thereby when required for meetings, &c. The other classrooms have glazed sashes in the divisional walls of the central hall; by this arrangement the head-master, teaching in any classroom, is able to overlook all the others. A teachers' room, with a window overlooking the playground, is provided on the first floor. Ample playground accommodation is provided, also a covered play-shed. The whole of the internal joiner's work is slightly stained and varnished. The internal walls are finished in red brick with Bath-stone dressings, and the roof is covered with brindle Broseley tiles. The building has been erected from designs by Mr. Frank H. Humphreys, A.R.I.B.A., architect and surveyor, 6, Trinity-street, Hastings, whose design was selected in a competition limited to local architects. Mr. William Small, of Ore, was the contractor, and the total cost (exclusive of site) was about £3,000.

It has been decided to complete St. Mary's Church, Drogheda, by the erection of a spire, in accordance with designs prepared by the architect of the church, Mr. P. J. Dodd.

PLUMBING REGULATIONS IN NEW YORK.

MANY useful regulations as to pipes are published in New York. It is required that pipes be taken through any roof full calibre, unless smaller than 4in. This is the smallest size that will not freeze up in cold weather in the climate of that city. Caps, cowls, and bends are found of no value, and often increase the danger of freezing. Soil and vent pipes are to extend above main roof, and as far as we can understand the rule, which is not very clear in statement, the distance is not to be less than 30ft. Referring to the falls of pipes, a fall of ¼in. per foot for all soil and waste-pipes is required. No traps are allowed on main vertical soil or waste-pipe. All pipes and traps of the drainage and vent systems are to be ex-

posed if practicable, or covered with woodwork. All waste, soil, and drain-pipes must be tested, and the test recommended is to fill the pipes from front cellar wall to roof with water. The regulation as to connections are that those between lead and iron must be by ferrules. The ferrule should be of the same bore as the iron pipe into which it is to be caulked. The lead should be joined to the ferrule by a wiped joint. Leadwork must have "wiped" joints for all connections. All fixtures must be separately trapped. Other valuable suggestions are given to which we have no space to refer. No doubt can be entertained that there is a vast deal of scamped work done in New York, and a code of rules framed upon scientific principles is absolutely required for the sake of public health. The testing requirements are especially of value, and these should be made under official conditions. The water test is a practical mode of finding out the leaks. Every joint ought to be perfectly dry under the test. Air-pressure is less satisfactory. At the joints a solid oakum foundation for the ring of lead is proposed, and with this kind of joint, if the pipes freeze, the expansion of the ice in the oakum is sufficient to prevent mischief.

BUILDERS' BENEVOLENT INSTITUTION.

ELECTION OF A PENSIONER.

An election of one female pensioner on the funds of this institution was held at the offices, 35, Southampton-row, Bloomsbury-square, on Thursday, 26th ult., Mr. B. E. Nightingale (President) in the chair. There were four candidates for the vacancy.

Shortly after the close of the poll, the secretaries (Messrs. T. Sterling and Ernest Rider) announced the results of the polling to be as follows:—Margaret Alice Richardson, Preston, North Shields, aged 66, widow of T. B. Richardson, late of Bayswater, builder (sixth application), 2,655 votes; Mary Ann Shapland, 132, Stamford-street, Lambeth, aged 71, widow of William Shapland, builder (fifth application), 3,294 votes; Sarah Elizabeth Drake, Tylers' and Bricklayers' Almshouses, King Henry's-walk, Ball's Pond, widow to Francis Drake, late of Acton, builder (second application) 1,339 votes; and Susanna Mansell, of 20, Bridge-road, Hammersmith, aged 68, widow of William Mansell, builder (first application), 806 votes. The successful candidate was therefore declared to be Mary Ann Shapland.

Among the friends of the Institution (others than those already named) who took part in the proceedings were Messrs. Geo. Plucknett, J.P. (hon. treasurer), C. Bussell, J. T. Bolding, W. Scrivener, T. Hall, and H. Ashby.

Votes of thanks to the chairman and scrutineers closed the proceedings.

ARCHÆOLOGICAL DISCOVERIES AT SOLIHULL.

At the Midland Institute, on Friday night, before the Birmingham Archæological Society, Mr. J. A. Cossins read a paper, amply illustrated with drawings, photographs, and lantern views, describing some discoveries of considerable interest which he has lately made at Solihull. They relate to the history of the Solihull Hall, a moated and half-timbered manorial residence of the 14th century. The place consists of a great hall in one story, and a transverse building of two stories which contains on the upper floor a large room, with an open roof and a dormitory, and on the ground floor two rooms, which were probably the kitchen and the buttery. The building has been converted into a comparatively modern dwelling-house, and is occupied. Additions have been made to it, and its internal features masked; but Mr. Cossins has been able to make a complete drawing showing its ancient appearance. The hall is covered by a roof carried by three fine arched principals of different designs. The entrance was by a porch into a passage crossing the hall at the south-west end, and divided off from it by a screen. At a height of seven feet this passage was floored over, forming an open gallery which served for the minstrels when great feasts and festivals were going on, or for the ladies, from which to view the proceeding going on below. At the opposite end of the passage is another doorway, which led into the courtyard; and from the passage also there were doors which led to the buttery and the kitchen. In most halls of any great importance there was at the opposite end a platform or dais raised one or more steps above the floor, on which was the high table for the lord and his principal guests. But this was not usual in the moderate and small-sized halls, and here there is no trace of it discernible. Beyond the north-east end of the hall Mr. Cossins thinks there was another building, containing possibly the cellar, and possibly some other of the offices. The interior of the hall, and especially the open-timbered roof, is wonderfully like that of Baggilly Hall, in Cheshire, with the exception that in the latter the timbers are cut into trefoils and quatrefoils. The lower portion of the walls has been rebuilt in later times with brickwork; but Mr. Cossins is pretty certain that there were no windows except in the usual place—namely, above the horizontal plate of oak which runs round the hall at a considerable height, where, indeed, he has traced them. Above the plate the walls were built alternately with vertical timbers and wattled spaces of equal width. These walls have served to keep out wet and cold very effectually for more than four hundred years, though their thickness is but 3¼in. There is not a crack in the plaster nor the thinnest space between the plaster and the wood. The timbers of the roof are all chamfered and held together by pegs, there being, probably, no single piece of iron in all the framework. Windows of this period were seldom glazed, except in very important houses, and the openings were closed with shutters. There would be a brazier in the middle of the apartment, the smoke escaping through a lowered turret in the roof; and, indeed, the timbers just above are blackened and covered with soot. The floor was probably nothing but well-rammed earth, which was the custom in middle-class houses. In the two-storied portion the principal room is the "solar," a feature of the halls of this century, but lacking when, a century earlier, the king or the lord slept with his retainers of both sexes in the hall. It was the private sitting-room and bedroom of the lord. The solar has an enormously massive roof of a remarkable character, of which the central beam in the middle truss is 24in. deep and 8in. or 9in. thick. Of the moat only two sides remain, but the position of the parts filled up can be traced. Who built the hall is quite uncertain. Dugdale speaks of the Barons Limesie, of Ulverlei (Solihull), and of their estates passing to the family of the De Odinsells, and Mr. Cossins thinks it possible that Solihull Hall may have been the chief seat of the barony.

CHIPS.

On Thursday in last week Col. John Ord Hasted, R.E., held an inquiry at the town hall, Ryde, into the application of the corporation to borrow £2,707 for works of street improvement. The application was referred to favourably by the inspector.

The University Chapel at King's College, Aberdeen, was reopened for service on Sunday after undergoing improvements and restoration at a cost of £3,000, the work, which is not yet completed, having been executed from the designs of Dr. Rowand Anderson, of Edinburgh.

Sir W. Anson, Warden of All Souls', Oxford, laid the memorial stone of the new Oxford House at Bethnal-green on Monday. The house is of red brick. It has been designed by Sir A. Blomfield, and will cost £13,000, of which nearly £10,000 has been subscribed. Upon the ground floor will be a library and club and dining-rooms. The second floor will be planned as bed and sitting-rooms for the residents, while upon the third floor will be a chapel.

Houdon's model, in coloured plaster, of his "Voltaire Assis," which the sculptor gave to his friend, François Dumont, has been bought for the Louvre.

The Dean of St. David's has found, within the precincts of the cathedral, a sepulchral slab of considerable historic interest. It bears a beautiful cross, ornamented with interlaced work, and a Latin inscription in minuscules, which reads: "The two sons of Bishop Abraham, Hed and Isac, lie here peacefully." Bishop Abraham was killed by the Danes in their last descent upon St. David's in A.D. 1078.

A carved oak altar table has just been placed in Sledmere Church, the gift of Sir Tatton Sykes. It is Early English in style, and has, as chief subject of the panels, "The Adoration of the Blessed Virgin." Mr. J. T. Beckham, of Low Ousegate, York, was the sculptor.

Building Intelligence.

Bournemouth. — The new Congregational Church, Richmond Hill, was opened on Tuesday week. The church is built on the site of the old one, which was too small to meet the requirements of the day. The main building takes the form of a cruciform plan, without any endeavour on the part of the architects to follow ecclesiastical precedents. The aisles are simple gangways except at a time of emergency. The floor is raised towards the south, and the seats are arranged on a circular plan. In the nave and transepts on the ground floor accommodation is provided for about 900 persons, but the number will be increased to 1,100, by sittings to be provided in the end and transept galleries. The building, which is fitted with the electric light, is designed throughout in the spirit of a Late period of Gothic. The materials used in the construction have been Swanage stone, facing with Bath and Portland stone dressings. Messrs. Lawson and Donkin, of Bournemouth, are the architects, and the builder is Mr. E. H. Kingerlee, of Oxford. The total cost has been about £12,000. We illustrated the church in our issue of Dec. 13, 1889.

Bristol.—The new wing of Bristol University College, the head-quarters of the Bristol Medical School, will be completed by June next. The present building represents the first section of the future grand front of the completed design. The building, which will accommodate 150 students, is Tudor in style. The museum will be on the ground floor, and the library over it on the first floor. They will both be 50ft. by 30ft., and will be lighted by four large traceried windows. The remainder of the wing includes a tutors' room, preparation room, students' room, and faculty room on the ground floor; and a physiological laboratory and theatre on the first floor. In the basement are living rooms for the caretaker, and heating chamber and store-rooms. The total cost will be £6,000. The architects are Messrs. Jones and Bond, of Corn-street, and the builder is Mr. G. Humphreys, Stapleton-road, Bristol.

Budleigh Salterton.—The foundation-stone of St. Peter, Budleigh Salterton, was laid by Miss Mary Rolle on Tuesday, Nov. 24. The church is being built by the Hon. Mark Rolle from designs of Mr. Geo. H. Fellowes Prynne, F.R.I.B.A., the builders being Messrs. Luscombe, of Exeter. The design is of Early type, having a nave of five bays, 28ft. wide, 40ft. high and 89ft. in length; and a chancel, 24ft. broad by 40ft. high by 36ft. long; north and south lean-to aisles, a double transept on south side forming the nave to a small apsidal chapel. Organ galleries and vestries are placed on the north side of chancel; a tower and spire, rising to the height of 140ft., is placed at the north-west angle of building. The chief entrances are at the west end and through south porch. Other doors are, however, provided to transepts and aisles. The whole of the exterior and interior facings will be in wrought Devon limestone or marble. Exterior dressings will be in Box Ground stone, weatherings and plinths in Doulting stone. The interior dressings will be in Beer stone, polished Devonshire marble being used in the columns and many of the smaller details of work. The cost of the present work will be between £7,000 and £8,000, the tower and spire being left out for the present.

Felton, Herefordshire.—The parish church was reopened on Nov. 26 after restoration from plans prepared by Mr. T. Nicholson, F.R.I.B.A., of Hereford, and carried out by Messrs. Beaven and Hodges, also of Hereford. An organ-chamber has been added. The chancel has been rearranged; it is fitted up with new oak stalls, having fronts enriched by open quatrefoil tracery, a stone credence has been inserted in the north wall, the Caen stone reredos has been raised so as to admit of a constructional shelf of dark Devonshire marble at its base, and the central niche has been surmounted by a crocketed canopy, also of stone. The floor within the altar-rails has been relaid, partly in marble mosaics, and partly with Messrs. Godwin's encaustic tiles. The walls in the interior of the chancel and nave have been ornamented with coloured designs supplied by the Rev. Ernest Geldart, rector of Little Braxted, Essex. Externally the work of restoration has included the strengthening of the foundations where settlements had taken place in the walls. The

rch has been rebuilt, and windows opened t of the sides. Larger buttresses have been ected against the angles of the tower and nave. pon the tower a short spire-like roof, covered ith oak shingle, has been erected. The west indow has been rebuilt, and filled with stained ass, by Messrs. Heaton, Butler, and Bayne. he cost of the restoration has been £750.

Llantillio Pertholey.—The reopening ser- ces of St. Teilo Church, Llantillio Pertholey, ear Abergavenny, were held on the 24th ult. he nave and porch roofs have been newly ated, the tower restored, a new oak block floor ut in the nave and south aisle, and a tile floor in ne chancel. The nave walls and windows have een restored. New oak seats have been placed the choir, and the reredos is also of oak. A ulpit has been constructed of the carved-oak anelling which lined the walls, and a vestry as been formed by placing screens across two ays of the passage leading to one of the chapels. n oak chancel-screen has been executed by Mr. William Yeo, of Green-street, Cardiff, from the esigns, and under the superintendence, of the rchitects. All the high pews have been swept way, and chairs provided instead. The work as cost about £900. Messrs. Kempson and owler, Llandaff, are the architects, and the uilder is Mr. J. G. Thomas, of Abergavenny.

West Kirby.—The second portion of St. ndrew's Church, built at a cost of £3,500, was onsecrated on Saturday. The section at present rected comprises the nave, 24ft. wide, with north nd south aisles, and a temporary chancel. An rgan has been erected at the end of the south isle. The entrances to the nave are by north nd south porches. The nave and aisles are rovided with chairs, accommodating 400 wor- hippers. The building is in the Early Perpen- licular style; it is erected in local red stone, and he interior of the walls is faced in ashlar of the ame material. The roofs are open-timbered in itchpine, with hammer-beam principals sup- orted by moulded shafts rising from the capitals f the arcade columns. A clerestory surmounts he arcade. The temporary east wall has been reated with simple decoration on the upper portion, and dossal hangings above the altar, which has a richly-worked frontal. Mr. W. H. Forde, of Birkenhead, is the general contractor for the work, which has been carried out under he superintendence of the architects, Messrs. Douglas and Fordham, of Chester.

COMPETITIONS.

Glasgow Art and Music Gallery.—The period for sending in sketch-designs for the new art and music galleries at Kelvingrove, Glasgow, in connection with the preliminary competition, expired on Tuesday. A large number of sketches have been sent in, and from these Mr. Alfred Waterhouse, R.A., who will act as assessor, will select six, and these architects will subsequently furnish new plans for a final competition.

West Hartlepool School Board.—In the recent school competition, West Hartlepool, Mr. William Landless, the architect to the Leeds School Board, who was appointed assessor, has made his award. He has selected three designs from out of the number sent, and is of opinion that the design marked No. 1, by Mr. J. Mitchell Bottomley, architect, 18, Albert-road, Middlesbrough, should have first place; design marked No. 5, by Messrs. Mawson and Hudson, architects, Bradford, the second place; and design marked No. 7, by Mr. J. Garry, architect, West Hartlepool, the third place. Mr. Landless says: "The designs by Mr. J. Mitchell Bottomley are distinguished by careful study, and a thorough knowledge of the requirements of a school, and are marked by a scholarly regard for the importance of the undertaking. The designs by Messrs. Mawson and Hudson do not bear evidence of the same skill, and the lighting has not received such care as its importance demands. The designs of Mr. J. Garry have been very hurriedly got up, and whilst the plan has certainly the merit of simplicity, the author has not given the necessary attention to the lighting, and it is to be regretted he did not give more time and consideration to the subject, as such would have resulted with advantage to himself. In conclusion, allow me to say it has been a pleasure to go into this question for you, and I have no hesitation in stating that Mr. J. Mitchell Bottomley has fairly won the competition."

ARCHÆOLOGICAL.

The Saxon Crypt in Ripon Cathedral.—During the past two days, with the permission of the Dean and Chapter, several members of the Royal Society of Antiquarians have been pursuing researches in the Cathedral, Ripon, with a view of clearing up one or two doubtful points about the old Saxon crypt under the central tower. The gentlemen present were the Rev. J. T. Fowler. F.S.A. (Durham), Mr. J. T. Micklethwaite, F.S.A. (London)—by the latter of whom the investigation was organised—Mr. J. W. Walker (Wakefield), Mr. C. H. Reed (British Museum), and Mr. T. M. Fallow (Coatham). The Saxon crypt is approached by steps from the south-east corner of the nave, the crypt being directly in front of the choir-screen. The present entrance is not original, stairs being still traced in the north-east corner of the crypt. It has always been thought that a corresponding set of stairs existed at the south-east corner of the crypt, and it was also surmised that that part of the cathedral had been used as a place of burial. It was to investigate these questions that the excavations had been made. Generally speaking, it has been found that there have been no alterations at the south-east corner of the crypt; and that the plan as now laid down—with the exception of the western entrance—is that of the original crypt of the 7th century. No trace of steps could be found at the south-east corner; but the visitors noticed, about 2ft. below the level of the nave, the remains of the floor. In the course of the excavations, two curious deposits of bones were found, but no indication of a place of burial. One of these deposits of bones was discovered many years ago. The other deposit was similarly placed, but was previously unknown. The latter appeared to be mostly of human bones, but mixed with some animal bones. The first-named deposit has been put back as found, with a lead plate and inscription recording the two openings. The other deposit has been placed in a four-gallon jar in the situation in which it was found, with a similar leaden plate. Full details of the excavations were taken by Mr. Micklethwaite, who wrote upon the subject some years ago.

ARCHITECTURAL & ARCHÆOLOGICAL SOCIETIES.

Glasgow Philosophical Society. — At a meeting of the Architectural Section of this society, held on Monday evening, Mr. John M'Math, Master of Works to the School Board of Glasgow, read a paper on "Progress in School Building since 1873," in the course of which he stated that eighteen years ago there were 228 schools in Glasgow, giving accommodation for 57,290 scholars, while now there were only 126 schools, but with accommodation for 92,181 children. In 1873 there were 33 schools that were unsatisfactory on account of accommodation or teaching, or both, and now they had only one school in that position. Mr. M'Math afterwards entered into the subjects of school planning, lighting, furniture, heating, and ventilating, and concluded with a description of a model school.

Mr. W. N. Inman, surveyor and valuer, of 126, Maida Vale, corner of Greville-place, W., has been elected a Fellow of the Surveyors' Institute.

Parliamentary powers are to be sought next session for the removal of one of the city churches in Bristol—that of St. Bartholomew in Union-street, the site of which Messrs. J. S. Fry and Sons desire to secure for the extension of their business premises. The proceeds of the sale, should the Bill be passed, will be applied for erecting a church on St. Andrew's Estate, Montpelier, where the unfinished works of a church begun several years since, and abandoned, are crumbling to decay.

The corner stone of a mission church at Yeoford Junction was laid on Friday. The building will seat over a hundred people, and will be a very cheap one, the estimated cost being £220 only. It is to be built with hollow brick wall and slated roofs, ornamented with pierced red ridges. A small porch is placed at the western end. The vestry is on the north-east side, with sexton's tool-house adjoining. A turret with oak shingled spirelet is placed above the apex of the nave roof to contain the bells. The entrance doorways are of English oak, with moulded heads of Polyphant stone. The moulded window-sills will be of the same material. The windows are framed of fir, with moulded mullions, transome, and heads. The floors will be deal boarded on oak joints. Mr. W. J. Dart, of Crediton, who prepared the designs, is the builder.

Engineering Notes.

Manchester Ship Canal.—The sub-committee, appointed on Oct. 9 to examine the reports and estimates supplied to the Manchester Ship Canal Board, in their report state that they have carefully examined the estimates, and have accepted that of the company's engineer (Mr. E. Leader Williams), confirmed by the corporation engineer. The revised estimate under consideration showed an increase of £863,595 over the company's engineer's estimate of January 1, which amounted £3,228,695, and of £512,614 over that of the corporation engineer of February 28, which amounted to £3,579,676. The company's engineer suggested means of saving £36,000, and, deducting this sum, the increase over the estimate of the corporation engineer is reduced to £476,614. The committee point out the reasons for the increase, and go on to recommend that all work not essential to the opening of the canal for traffic should be postponed to the extent of £363,000. They are of opinion that the canal may be opened in the spring of 1893. They further calculate that if the whole available assets are absorbed, there will be an eventual surplus of £1,400,000. This report is signed by three of the directors; but the other two, the representatives of the Manchester corporation, have declined to sign it, and present a report of their own, in which they state that it is with considerable surprise that they have been presented with an amended estimate in excess of that presented in February to the council. They think that the available resources can only be adequate by the adoption of immediate and vigorous retrenchment. They have arrived at the conclusion that the resources of the company are not so economically administered as they ought to be, and to this end they strongly urge:—(1) That portions of the work be let to independent contractors; (2) that the workshops should be reorganised, and public tenders invited for materials and stores; (3) that the present salary of the official staff should be carefully revised, and all superfluous service dispensed with; (4) that other extraneous charges should be still further curtailed. Further, they deem it to be necessary that a committee should be forthwith appointed by the board to carry out the suggestions contained in these observations.

CHIPS.

The death is announced, at the age of 51, of Mr. Thomas Angelo Moore, architect, of Sunderland. He was the son of the late Mr. Thomas Moore, architect, of the same town, and enjoyed a large practice, principally in the district.

Mr. Robert Mathers, J.P., of Lurgan, for the past twenty years proprietor of the steam sawmills at Lurgan, died suddenly last week. He was a town commissioner for 26 years, but resigned office about two years ago.

The Belgian art critic and archæologist, M. Jean Rousseau, who was secretary to the Commission Royale des Monuments, died last week in Brussels, aged 62.

A new elementary school at Skirlenbeck, near Pocklington, was opened last week. It has been built from plans by Mr. C. H. Channon, architect, of Malton.

The council of the Royal Society of Painter-Etchers will follow up the Rembrandt and Turner collections of 1890 and 1891, by including in the society's forthcoming exhibition in March next, a selection of the etchings of Vandyck.

New Sunday schools attached to Dewsbury-road Wesleyan Chapel, Leeds, were opened on Friday. They have cost £3,200, and have been built from designs by Mr. G. F. Danby, of Leeds, the architect of the adjoining chapel.

A portrait of Sir William Thomson, P.R.S., was formally presented to Glasgow University on Nov. 26, the unveiling being performed by Mr. Balfour as Lord Rector. The portrait is a three-quarter length by Professor Herkomer, R.A. Sir William is shown seated in an arm-chair, wearing a black silk gown, with purple hood, with the hands clasped in front.

At a meeting held at the County Hall, Aylesbury, on Saturday, it was decided to establish a county museum for Buckinghamshire. Sir Harry Verney, who suggested the scheme, promised to hand over his collections when the museum was formed, and Dr. Walford, of Leighton Buzzard, also intimated his intention of presenting Anglo-Saxon relics to the institution. A committee was formed, who will endeavour to raise £3,000.

TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, 332, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

Cheques and Post-office Orders to be made payable to J. PASSMORE EDWARDS.

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The charge for Competition and Contract Advertisements, Public Companies, and all official advertisements is 1s. per line of Eight words, the first line counting as two the minimum charge being 5s. for four lines.

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Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page advertisements and alterations in serial advertisements must reach the office by Tuesday Morning to secure insertion.

NOTICE.

Bound volumes should be ordered early (price Twelve Shillings each), as only a limited number are done up. A few bound volumes of Vols. XL., XLI., XLVI., XLIX., L., LI., LIII., LIV., LVIII., LIX., and LX. may still be had, price Twelve Shillings; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

RECEIVED.—S. G. and Co.—B. of S.—C. B.—H. N.—J. M.

OUR NEW YEAR'S DOUBLE NUMBER.

EARLY application for space for advertisements in the NEW YEAR'S DOUBLE NUMBER, which will be published Jan. 1, 1892, is advised. The space at our disposal is very limited, and we cannot guarantee insertion of any advertisement that may reach us later than Dec. 15.

"BUILDING NEWS" DESIGNING CLUB.

SMILASH THE GOTH. (You need not show a model's room. The north faces the front, as stated. Cement facing to walls, and stone dressings to openings, as stipulated.)—OLD GOLD. (House detached, but presumed to be one of a row of similar houses on various-sized plots. See last answer.)—S. P. B. (Lights on three sides only.)—JOHN THONEY. (Rough-cast face is not asked for.)—Several other correspondents are answered by the above replies.

DRAWINGS RECEIVED.—"Q. E. F.," "An Old Hand," "Dividers in a Circle," "Flute," "Persevere," "Plan," "Ilex," "Magnet," "Red Brick," "Black and White Shield," "Devil's Chimney," "Mica," "Symbol," "Filiolus," "Ivanhoe," "Smiash the Goth," "Terracotta," "X. S. X.," "East Anglia," "Punch," "Gyp," "Sniktaw," "Nodrah," "The Idler," "The Useless One," "Jean," "Hilarious," "Pen," "Black Prince," "Sparrow," "Lacrosse," "Hardwick," "Orient," "Peterborough," "Albyn," "Airedale," "Hales," "Johnny Jones," "Leo," "Streona," "Wit," "Pendragon," "Ich Dien," "San Juan," "Graham," "Westward-ho," "Hut," "Herbert," "Thrift," "Whasp," "Gobo," "Sunset," "McGinty," "Leontes," "Compass Box." "T" in a circle, "Boreas," "Tempus Fugit," "Baluster," "Love's Labour—?" "Koko," "Jackey," "Ayrshire."

Correspondence.

FLOOR CONSTRUCTION.

To the Editor of the BUILDING NEWS.

SIR,—A few weeks since I saw that you had allowed attention to be drawn to the absurdity of continuing the term "folding" in connection with floors, when "folding" has been so long discontinued.

May I ask your kindness in allowing me to allude to another term in connection with floors, which should be discarded for the same reason? I mean the word "fillistered." When I started at the bench, between forty and fifty years since, floor-boards were very rarely, if ever, thicknessed (machinery was not then available for either sawing or working). In lieu of this, however, they were "fillistered"—*i.e.*, a sinking was worked by a side fillister plane on the backs of boards down to a gauge-line which had been run along each edge. Before nailing the boards, after they had been fitted to their places, they were turned face downwards, and the surface which would bear on the joists was adzed down to the fillistered sinkings; or, if the board would not carry the gauge-line all through, it was packed up. Many who probably never engaged in this may have seen old floors which were thus treated.

Certain books which are regarded as authorities treat "rebated joints" and "fillistered" as synonymous terms. In reality, they are as different as square-edged and match-jointed would be: in one case the board retains its width, in the other it does not.—I am, &c.,

SURVEYOR.

ROGERS v. JAMES.

SIR,—Referring to this case as reported, and also from the letter in your issue of the 27th Nov. the judgment appears to be one of the most extraordinary ever come to by a judge and jury.

First, the plaintiff is mulcted in half his charges; and, secondly, the defendant is allowed a counter-claim to a large extent, for what he had already been paid in the settlement of accounts; he appears to have wished to get his house for half the original cost. Where does the liability of an architect end? Is he to pay for the houses as well as lose his commission, whenever an unprincipled client chooses to make the claim?

In the interests of the profession it would appear to be the duty of the R.I.B.A., as the representative body, to take this case up and carry it to the highest tribunal, if they ever do take any such matters up.—I am, &c.,

T. R. W.

[Ah—If!—ED. "B. N."]

Intercommunication.

QUESTIONS.

[10669.]—**Kilns for Bending Sheet Glass.**—Where can I see kilns, heated by gas, for bending sheet and plate glass? Why do not makers of such apparatus advertise in the BUILDING NEWS?—A CONSTANT READER.

[10670.]—**Contagious and Infectious Diseases Hospital.**—Information as to the best book published on the planning and construction of above hospitals will be esteemed a favour.—SANITARY.

[10671.]—**Red Pine.**—"W. S.," in answer to "Woodenhead," says red pine (P. rubra) is sometimes called by botanists P. resinosa, and that pitch pine (P. resinosa) is sometimes called by botanists (as Laslett) P. rigida. But, to make the confusion worse, Stevenson (a good authority), in his book, "The Trees of Commerce," says pitch pine is the P. Australis of Michaux (whom "W. S." quotes as an authority), and that American red pine is the P. resinosa of our botanists. How can we truly identify the woods called by the botanical names P. rubra, P. resinosa, P. rigida, P. Australis; common names, American red pine, Canadian red pine, pitch pine;—and how many different varieties do all these names represent?—SAPPY.

[10672.]—**Salisbury Cathedral.**—Can any authority on the above inform me if the vaulting of the nave and aisles is constructed of stone. I know that the ribs are of stone, and, if I remember well, the vaulting is striped with red lines, which makes me inclined to believe they are of chalk, lined in to imitate stone blocks. The cloisters, I find, have chalk vaulting, with stone transverse and diagonal ribs, therefore it is probable that the nave and aisles are similar. The remarkably slender Purbeck shafts of the Lady chapel (I refer to the single ones) seem very weak to be able to carry the superincumbent weight of stone vaulting, and as the vaulting in this part of the cathedral is covered with coloured decoration, it is impossible for anyone to tell, looking up from the floor, whether or not it is of stone. The stonework of the stupendous spire, according to some authorities, is only 7in. in thickness. Can anyone connected with the restoration inform me as to how the horizontal beds of the stones are jointed?—DAVID F. SMITH, Maidstone.

[10673.]—**Evening Classes.**—Can any of your readers say whether any private evening classes are held in London, where building construction and drawing are taught? If so, perhaps they will name them in full.—CESTRIA.

[10674.]—**Wood-Block Floor.**—Would someone who has had experience in such matters kindly suggest the best remedy to be adopted in the following case? In an ancient, massive, stone and flint-built building, recently restored, the wood-block floor, which is laid upon 6in. of good Portland cement concrete taken 2in. into the walls, was, after the late heavy rains, covered with water. The building is in a low situation, and the floor is below the level of the water in the surrounding ground when the springs are high, but cannot be raise —H.

[10675.]—**Laying-out and Drainage of Buri Grounds.**—I should be much obliged if any of yo readers would let me know if there is any small work this subject—or in what work is such subject embodie GOTTSACKER.

REPLIES.

[10663.]—**Timber.**—"Woodenhead" is correct applying to the terminology of timber the epithe "miserable" and "confusing," of which he gives i stances emanating from sources which are consider standards of education. "Woodenhead" will find t subject of red pine correctly treated in my recently pu lished timber trade handbook, "The Trees of Commerce (London: W. Rider and Son). Now as to Hurst's han book. It says, "Red pine (P. rubra):"—this should re (P. resinosa)—"a mere variety of the (P. sylvestris Scotch fir." It is no such thing: it is a distinct specia Again, "Its grain is finer than the P. sylvestris." T truth is the reverse, except where the latter is grown the south fringe of the great pine belt of Northe Europe—i.e., in the north of Prussia, and shipped fro Memel and Dantzig. In fineness of grain it is imme surably inferior to the shipments of red or yellow fir fro St. Petersburg and the White Sea. Again, "It contain less sap." This is not true in fact, for if trees of equ diameter were taken, the balance would, in my opinio incline to the European fir. Again, "It is very free fro knots." This, in comparison, is questionable; the writ was evidently only acquainted with the butt cuttings se here in the squared log, a class of wood which, owing the cost of transit, is shipped of prime quality. Th American pine, when cut into planks and deals, and shipped to this country, is, in comparison on the detail knots, inferior to the European fir, for it has the draw back of having its knots black or rotten, in place of re hard, bright, or live knots. Hurst's handbook, claiming, on behalf of the Canadian red pine, "thes very desirable qualities," over the European fir, advance a claim that is unfounded. The red pine is a soft, mil undurable wood, of no special value in the trade. very closely resembles in colour and texture the wood the European fir, and is often wrought into joinery wor as this wood. Red pine is wholly unfit for outdoor work or for engineering purposes; its place is indoors, for pur poses to which the ordinary Canadian white or yello pine (p. strobus) is applied. It is a curious fact that, storing American sawn-pine deals or planks, they wi not admit, owing to their perishable nature, of bein placed together, whereas those of the European fir ma be piled away without laths or strips, in which case litt or no damage will ensue from decay. Laslett, in hi "Timber and Timber Trees," is correct in his botanica classification of the red pine, his remark about it being called "the Norway pine in New England, but being different from the tree so called in Europe, which a kind of spruce," needs some explanation. "Norwa pine," in Europe, is an obselete term for the Norwa spruce (Abies excelsa), a wood used for masts, spars ladders, and scaffolding. The Norway spruce grown in England is often called the spruce fir. The commercia names of wood are older than the botanical names, an have never been corrected to conform with science,—henc we have the following anomalies:—

The Pinus sylvestris, producing the Scotch or Baltic fir.			
,, Abies excelsa,	,,	,,	Norway or ,, spruce.
,, Picea pectinata,	,,	,,	Swiss pine or silver fir.
,, Pinus Australis,	,,	,,	,, pitch pine, &c.

That the Norway fir was an old term for the present Norway spruce seems evident by reference to Milton's description of Satan in his first book of "Paradise Lost":—

> "His spear, to equal which the tallest pine,
> Hewn on Norwegian hills, to be the mast
> Of some great admiral, were but a wand."

Laslett speaks favourably of the red pine, but he does not do so to the disparagement of the Baltic fir, as reference to his table of experiments proves. My published notes, however, drawn from this source, are as follows:—"Compared with Dantzic red fir, the breaking weight of the red pine is 25 per cent. less, its tensile strength is 16 per cent. less, and its crushing weight, on 2in. cubes, is 33 per cent. less."—W. STEVENSON, Queen's Dock, Hull, Nov. 23, 1891.

[10665.]—**Diseases of Animals in Relation to Meat Supply.**—The best information on this subject for candidates preparing for the Sanitary Institute Examination for Inspectors of Nuisances is that given by Dr. Francis Vacher in his pamphlet on "Diseased Meat." This is now, however, out of print in pamphlet form, but is reprinted in the "Sanitary Record" Diary. I shall be glad to give "C. L. H." or others desirous of information further particulars on application.—C. C. S.

[10667.]—**Swimming Baths.**—As one who has had a lot of experience in the same, I should by all means use wrought iron, it being much more suitable for the large span required than either wood or wood and iron combined. The design, of course, must depend on the cost; and if properly painted when new, the corrosion need not be feared at all. For example see all the newest baths in any of our large towns, or refer to back numbers of the BUILDING NEWS.—T. W. HUDSON.

The bust of Mr. Andrew Carnegie, which was executed to the order of the corporation of Edinburgh by Mr. M'Bride, sculptor, was on Monday placed in the Edinburgh Public Library.

The appointment of engineer to the municipal commissioners of George Town, Penang, Strait Settlements, has been conferred upon Mr. Robert Peirce, Assoc.M.Inst.C.E., M.S.E. Mr. Peirce was articled to the late Mr. R. Vawser, of Manchester, but for several years he has been resident engineer for the Birmingham corporation upon the construction of cable tramways, and for the past three years has been assistant to Messrs. Pritchard and Co., of London and Birmingham.

Legal.

ARCHITECTS' AUTHORITY.—V.

When an architect acting as agent for the owner exceeds his authority, whether general or special, expressed or implied, his employer or principal is, of course, not bound by his actions. If an architect orders work to be done which is beyond the scope of his authority as such agent, and, unless he expressly accepts that work, or ratifies the action of the architect, or adopts it in the final certificate, the employer cannot be made liable to the builder. Attempts have been made to render the owner liable in such cases, because he has entered into possession of the buildings upon which such work had been executed without authority. But these have failed, and it is clear that the mere possession of property upon which unauthorised work has been done cannot make the owner liable to the builder for the cost of such work. As to what will amount to a ratification of work done by an architect in excess of his authority, this is more a question of fact than of law, and the evidence forthcoming will in such case have to be weighed upon its merits. In dealing with corporations and local bodies, whose contracts always require to be under seal, builders should be very careful, because in such cases excess of authority by an architect cannot be made up for by mere implication, and nothing can be recovered for work done extra or outside the sealed contract.

If an employer stands by while he knows his architect is exceeding his authority in ordering work from a stranger, and lets this man expend money for his benefit without interfering, then certainly that employer will not be allowed afterwards to set up as a defence the want of authority in his architect. Of course, as long as the architect keeps within the scope of his authority, he is in no way liable to the builder, because he is simply acting solely acting as the agent of his principal, the owner or employer of them both. It is part of the arrangement that the work done by the architect and the builder is for the benefit of the owner only; and there is thus no sort of contract whatever that the architect will pay the builder for any work he orders, acting within the limits of that authority. Still, if an architect, like any other agent, leads the builder to suppose he is really the principal, then he would become personally responsible. Another noteworthy point is that, speaking generally, an architect cannot legally delegate his authority. He is, indeed, a personal agent, and he is not empowered to authorise an agent to act for him in regard to his special agency as architect of a building-owner.

FRED. WETHERFIELD, Solicitor.
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NOTE.—All questions for reply in this column must be headed "BUILDING NEWS," and must reach my offices, as above, by *Tuesday* morning to insure answer same week.

LOCAL BOARD.—"STREET."—I am obliged to my correspondent for his letter. But I am quite aware of the clauses of the Public Health Act to which he is good enough to refer me, and of the numerous cases as to the meaning of the word "street." In the question I answered, the private road was not a "street," and, as a fact, the Local Board have now so decided for themselves.

F. M. G.—SURVEYORS' BY-LAWS.—He could do so unless he agreed not to practise privately; but this would be subject to the regulations of the Local Board.

L. B.—FREEHOLD PAVING.—The local charge for paving and making the new road is legally a charge on the property, and as you are now the owner, you are liable to pay the same. You should have seen to this before completing the purchase.

T. H. C.—BUILDING CONTRACT.—The works formed one under and one contract, and if you are not allowed to go on with the job, you have a claim for damages.

QUANTITY SURVEYOR.—CHARGES.—The architect only who employed you is permanently liable, as he does not appear to have been authorised to do so by his client.

The Queen has conferred a knighthood upon Mr. George Reid, who was recently elected President of the Royal Scottish Academy of Painting, Sculpture, and Architecture, in succession to the late Sir W. Fettes Douglas.

The War Office authorities have accepted the tender of Messrs. Reed, Blight, and Co., Limited, of Plymouth, for the erection of a new block of married soldiers' quarters at Fishers Nose, Plymouth. The work will be commenced forthwith.

LEGAL INTELLIGENCE.

AN ARCHITECT CONVICTED OF ARSON.—The trial of Arthur Muckleston Leach, 38, architect and surveyor, and Henry Cove, 27, coffee-house keeper, indicted for maliciously setting fire to a dwelling-house known as The Rocks, in the occupation of Leach, at Bedfont, near Staines, with an intent to defraud the Liverpool and London and Globe Insurance Company, took place before Mr. Justice Hawkins on Friday, Saturday, and Monday. Both prisoners were found guilty, and were sentenced to six years' penal servitude.

RE PAINE BROTHERS.—The debtors were builders, carrying on business at Stamford-hill, and Mr. Willis appeared on their behalf at the London Bankruptcy Court on Friday, for the approval of a scheme of arrangement which had been agreed to by the creditors. The accounts showed gross liabilities of £39,096, of which, however, only £5,219 was unsecured, and the assets were estimated at £5,188. The scheme provided for the vesting of the property in a trustee, also for the completion of certain unfinished buildings, and for the postponement of a large family claim until the other creditors shall have received 7s. 6d. in the pound. The application was opposed by the Official Receiver mainly on the grounds that the debtors had brought on their failure by rash and hazardous speculations, and that there was not sufficient evidence that the assets would realise 7s. 6d. in the pound. The Registrar refused to approve the scheme.

IN RE HARWOOD AND FOULGER.—A meeting of the creditors of Harwood and Foulger, builders, of Upper Seymour-street, Leeds-road, Bradford, was held on Wednesday week. The gross liabilities were stated to be £849 14s. 5d., and the assets £95 8s. In August, 1889, up to which time the debtors had both been journeymen joiners, they took over the business of joiners and builders which had been conducted by Messrs. Dinsdale and Shepherd, paying £107 for the goodwill and stock. For this firm and for other persons they have since executed several contracts, upon the whole of which they made a profit beyond working expenses and maintenance. The debtors ascribe their difficulties to unfortunate speculations in land and houses.

FRONTAGE LINES.—At Hampstead, on Wednesday week, David Cross, builder, St. Mary's-villas, Harlesden, was summoned by the London County Council for having erected a building beyond the general line of frontage in Burrard-road, without the consent in writing of the London County Council. Burrard-road formed part of the Woodbine Estate, West Hampstead, which, in 1877, was laid out and disposed of as a building estate, with roads formed and sewers laid. In February, 1891, the defendant commenced digging the foundations of a house and shop at the corner of Burrard-road and Fortune Green-lane, the entrance to the shop being at the angle at the corner of these roads, with a private entrance in Burrard-road. In April, 1891, the superintending architect of the London County Council defined the general line of frontage for buildings in Burrard-road, and in his certificate described the house now in question as being "situate in Burrard-road," but to be "numbered" as in Fortune Green-lane. On May 4 the district surveyor called attention to the fact that the house projected 10ft. beyond the line of frontage in Burrard-road; but it was not until October 28 that the summons was taken out. On these facts Mr. Biron, for the Council, asked the Bench to make an order for the demolition of the projecting side of the house, which was roofed in and practically ready for occupation. Mr. Macmorran, for the defendant, contended that the summons must be dismissed, as the prosecution was not instituted within six months from the date when the building was begun. Furthermore, the case was affected by the House of Lords' decision in "Barlow v. the Vestry of St. Mary Abbot's, Kensington." The Bench dismissed the summons, because the proceedings were not taken within the prescribed time, and also because they held that the building was in Fortune Green-lane, and not in Burrard-road, and they allowed the defendant five guineas costs against the Council. Mr. Biron intimated his intention to ask the Bench to state a case.

T. POTTER AND SON, LIMITED, IN LIQUIDATION.—In consequence of arrangements being made for one or two of the shareholders of this business to carry on same as a private firm, a special resolution was passed on the 10th ult. for the voluntary winding up of the above company, and Mr. H. S. Potter and Mr. H. A. Potter have been appointed joint liquidators for the purpose of such winding up.

WANTED, AN OWNER FOR A CHURCH.—At Worship-street, last week, the Rev. E. F. Coke, vicar of St. James's the Great, Bethnal-green, attended in answer to a summons taken out by the London County Council, directed to "the owner of the Red Church," for disobeying a notice to take down the brick and stonework of the spire, the pinnacles of the spire, the gables, and other parts of the structure, to make the same secure. Mr. Coke said that he was not the owner, and it was difficult to say who was. The church was one of those dealt with on the terms of the Act introduced by Sir Robert Peel, and was not a parish church or a district church. Bethnal-green churches were under a local Act which conferred very large powers, but this particular church was said not to be within that Act. Mr. Bushby made an order "on the owner" to do the work specified.

EMPLOYERS' LIABILITY AND SUB-CONTRACTS.—Mr. Commissioner Kerr and a jury had before them on Friday in the City of London Court a claim under the Employers' Liability Act, which was made by Charles Hunt, labourer, to recover £234 as damages for serious injuries he had sustained through the negligence of a foreman in the service of the defendants, Messrs. John Mowlem and Co., contractors. The plaintiff said that he was employed by the defendants in bricklaying work in enlarging Liverpool-street Station. A quantity of bricks fell upon him, and he was seriously hurt. The defendants, while regretting the accident, set up a sub-contract between themselves and one Bills, who, they alleged, employed the plaintiff. This, it was urged, exempted them from liability. The plaintiff said he only regarded Bills as a foreman. The jury found for the plaintiff for £175.

THE BELLAGIO ESTATE (LIMITED).—A meeting of creditors of this company was held on Nov. 26 at the office of the Board of Trade. This company was registered in August, 1887, with a nominal capital of £40,070, and was formed for the purpose of acquiring and developing certain freehold land at Lingfield, Surrey. The amount of the purchase-money agreed upon was £45,000, the failure of the company being attributed to the want of sufficient capital to proceed with the development of the estate. The liabilities to creditors amount to £111,817, of which £51,007 are expected to rank, and there appear to be no available assets. Considerable discussion took place with reference to the appointment of a liquidator, and the meeting was adjourned for a week, when a trustee and committee of inspection were appointed.

IN RE THOMAS ROBERTS.—A meeting of the creditors of Thomas Roberts, contractor, has been held at St. Helen's, Lancs. Mr. G. J. Critchley, plumber and painter, was voted to the chair. Mr. Cook, solicitor, presented a statement of accounts, which showed liabilities £5,469; assets, £3,013. It was finally resolved to ask Roberts to present his own petition. He commenced business about twelve years since, and has had a good many important contracts in and around St. Helen's. Last year he tendered for the new gas-tank which the corporation are erecting in Knowsley-road. During the progress of excavation (Mr. Roberts says) he came upon 10ft. of rock which he was not aware of, and by which he lost very considerably. He also says he has lost upon other contracts, and he has been harassed with labour disputes. The corporation gas-tank is being completed under the direction of Mr. S. Glover, gas engineer to the corporation.

RECOMPENSE FOR REJECTED TENDER.—In the Queen's Bench Division, last week, before Mr. Justice Wills and a jury, the case of Dickinson v. the Debenture Corporation was heard. The plaintiff, Mr. George Dickinson, is a contractor for public works, carrying on business at Loughborough Junction. In July, 1890, he saw an advertisement inviting tenders for the construction of a marine drive at Douglas in the Isle of Man. The plaintiff put in a tender for £4,595. The tender was not accepted; but by its means the plaintiff was brought into contact with the defendant corporation. Long discussion took place, and a new scheme was prepared, and the plaintiff was invited by the directors to get ready a tender for the work. He worked day and night on it, and gave a tender for £7,700. Mr. Floyd, the engineer for the corporation, said: "The Board practically gives you the tender; but to make it legal, other tenders will be invited." He attended a board meeting, and agreed to take £200 off his tender to have the matter settled at once. He was asked, "When can you begin?" and said, "At once;" and he sent his brother to the Isle of Man to begin the work on the following day. He was surprised to receive a formal letter stating that the contract had been given to someone else. He wrote claiming some recompense for the trouble to which he had been put, and, failing to get any satisfaction, he commenced this action. Cross-examined, the witness said he had agreed to pay Mr. Floyd, the engineer, 2 per cent. on the amount of the quantities if he got the contract. Mr. Germaine (defendant's counsel): That is a usual payment. His Lordship: I am not at all sure that it is a usual payment. I have a very strong opinion about matters of this kind. Mr. Charles Dickinson, the brother of the plaintiff, said he went to the Isle of Man, upon his brother's instructions, to make the preliminary arrangements for carrying out the contract.—During an adjournment, counsel had a consultation with the judge, the result of which was that the case was settled by defendants paying the plaintiff £100 and costs.

RE W. H. TURNER.—The debtor was described

as an architect and surveyor, of 58, Finsbury-pavement, and his accounts showed debts of £874 10s. 6d., and assets £24 1s. He now attended before Mr. Registrar Linklater for public examination, and stated, in reply to Mr. Wildy, official receiver, that he was proprietor of the De Beauvoir Arms, Kingsland, in July, 1885, and he afterwards sold the house at a profit of about £300. In April, 1888, he set up as an architect and surveyor, having offices in Finsbury-pavement. He had between £200 and £300 capital at the time. In this business he became acquainted with a builder, to whom he advanced about £200, but the sum was not repaid, and he now considered that he had lost the money. He attributed his failure partly to this cause, to ill-health, and other causes. The examination was concluded.

Surveyor's Certificates.—Elmes v. Burgh Market Company.—This action was tried before Mr. Justice Vaughan Williams at the last Lincoln Assizes, and came on at Queen's Bench last week for further consideration. The action was brought by a contractor for money alleged to be due to him under a contract made with the directors of the Burgh Market Company for the making and completion of a cattle-market at Lincoln. It was contended at the trial by the defendant's counsel that no proper certificate had been given by the surveyor to satisfy the terms of the contract. In his judgement delivered at Nottingham, Mr. Justice Vaughan Williams remarked :—This is an action brought by a contractor for the balance of money alleged to be due to him for works executed by him for the defendants. The first defence raised is that, under the contract, a certificate from the surveyor appointed under the contract is a condition precedent to the plaintiff's right of action, and that no such certificate has been obtained. The plaintiff relies upon a certificate dated the 22nd of November, 1890, which is in the following terms: —"Works at Burgh Market, Spilsby, 22nd November, 1890, J. W. Thimbleby, Esq. I, the undersigned, do certify that Thomas Elmes is entitled to receive the sum of £127 in payment of final instalment of contract after maintenance of the above-named works. £127.—(Signed) J. B. Butcher, Architect." Two objections are taken by the defendants to this certificate—first, it is said that it is not such a certificate as is required by the contract, that the whole of the works were in a complete and satisfactory state; and, secondly, it is said, that the person who gave the certificate was not at the time of giving it surveyor within the meaning of the contract. The first objection is on the authority of "Morgan v. Birnie," and a good objection, for the document seems to be a mere statement of account, and not the required certificate. I further think it doubtful whether the person giving the certificate continued to be the surveyor for the purpose of certifying after his discharge, which occurred before the 22nd of November. But neither of these points is of much importance, because the plaintiff also relies on the oral certificate of Mr. Butcher given to the chairman of the defendant company and to the directors; and I find that this certificate was, in fact, given; and it was the giving of this oral certificate which really led to the dismissal of Mr. Butcher from his post of surveyor. I also hold that the certificate required by the third clause of the contract is not a certificate in writing; and I find that the plaintiff did, in fact, complete the whole of the works to the satisfaction of the surveyor. Under these circumstances, I give judgment for the plaintiff for the amount claimed with costs.—After the delivery of this judgment, the defendant's counsel applied that the consideration of the case might be further reserved in order to enable the defendant to call certain witnesses, whose evidence had not been taken at the trial, to contradict the statement of the surveyor that he had given a verbal certificate of the satisfactory condition of the works to the secretary of the defendant company. The case was accordingly further adjourned to London, and that evidence was given, and the Judge now confirmed his prior judgment, saying that he saw no reason to alter it.

In re W. Bulcock, Liverpool.—Before Judge Collier in the Liverpool County Court, on the 20th ult., William Bulcock, who formerly carried on business as a builder at Sandringham-road, Tuebrook, again made application for his discharge. Mr. Ring, the deputy official receiver, stated that the judge had adjourned the hearing for 12 months, which had now expired. Bankrupt had erected property which he valued at £39,587, but regarded at the time of his receiving order as unsaleable. Upon the property in question there was raised by way of mortgage £35,942. The only asset realised was one of £5, and no dividend was paid. His Honour commented on the fact that Mr. Bulcock had not kept proper books, and made an order further suspending the discharge for six months.

The statue of Edward Irving, who was born in Butts-street, Annan, has just been completed by Mr. J. W. Dods, of Dumfries, in the clay. The statue is to be erected in the town of Annan.

Our Office Table.

Rather late in the day Mr. G. Shaw-Lefevre has awakened to the fact that a hideous addition in the meanest brickwork is being added to King's College, in destruction to the architectural effect of the river frontage of Somerset House. The right hon. gentleman asks in the *Times* why some steps are not being taken, by way of injunction or otherwise, to stop the progress of such an unsightly excrescence? Mr. Alfred Waterhouse, R.A., follows up this protest in the same journal, pointing out that Somerset House, being a symmetrical composition, its lines cannot be altered without destroying its charm. "If," he adds, "as is the practice in Paris, the designs of all structures likely to interfere with our public buildings and our principal street views had to be submitted, before their erection, to some body of experts fit to pass a wise and unprejudiced judgment on them, some most regrettable blunders would doubtless be avoided." Messrs Stephen Salter and Adams, the "architects" of this extraordinary addition to King's College, in a curt rejoinder, assure Mr. Waterhouse that there is no intention whatever of carrying the building still higher, and for this we suppose the admirers of Chambers's masterpiece will be duly grateful. Mr. Lewis Angell, who is, like Mr. Salter, a F.R.I.B.A., pleads that no body of men ought to be expected, by the rules of business or logic, to subordinate their interests to sentiment. King's College is, he says, very poor, and it requires more accommodation. So much for Fellows' appreciation of architecture as an "art."

Mr. W. B. Richmond is, says the London correspondent of the *Manchester Guardian*, throwing himself heart and soul into the decorative work which he is doing for the choir of St. Paul's Cathedral. He has erected a special studio for the purpose in the garden of his residence at Hammersmith, and there spends the greater part of his working day. All who have seen the first designs, prepared in water colour, agree that they are among the best work that the artist has done, and their beauty is not less than their appropriateness to their future position. From water colour the designs will be transferred to mosaic; and Mr. Richmond's great knowledge of the technique of this part of the work will here stand him in good stead. The style in which the artist has worked is broad and flowing, and the colour, "rich but not gaudy," is sufficiently powerful to be effective in the high spandrels where the mosaics will ultimately be placed.

The total number of Private Bills to be introduced into Parliament next year is only 188, and the total number of Provisional Orders that will be applied for is but 69. Of the total number of Private Bills, 81 relate to railways, docks, and canals; 33 to gas, water, and electric lighting undertakings; 21 are Corporation and Local Board Improvement Bills; 11 relate to tramways; and the remainder are of a miscellaneous character. Twenty-four of the Private Bills relate directly to London, among which are two rival schemes for railways from Waterloo to the City, a line from Waterloo to Baker-street, and another projected line from Charing Cross to St. Pancras and Hampstead. The existing or authorised electrical railway companies are also promoting extensions from King William-street to Islington, and from the Royal Exchange to Liverpool-street; whilst other lines are proposed from Finsbury Park Station to the City; and from the City to Epping Forest. The London County Council are responsible for four Bills—namely, their General Powers Bill, a Bill for the construction by them of tramways over Westminster Bridge to Charing Cross, a Bill for the construction of subways for the reception of gas, water, and other pipes, and a Bill dealing with the London water supply, the expense of promoting which will, in the event of failure, be paid by the Corporation of London. Of the Provisional Orders, 30 relate to electric lighting, 16 to gas and water companies, 13 to piers and harbours, and 10 to tramways.

Commenting on the annual meeting of Messrs. Robert Boyle and Son last week, *Money* says: "The majority of the shareholders in this company will be inclined to concur in the remark of one of their number at the meeting, that this concern is something of a *rara avis* in financial enterprises. In the matter of dividends, it has never once condescended to the 10 per cent. foreshadowed by the prospectus, and for which the vendor, Mr. Robert Boyle, gave his personal guarantee, extending over five years. For the first four years the division was at the rate of 12 per cent., and for the past two years another half per cent. has been paid. This has been done without in any way straining the accounts of the company, the maximum amount allowed by the articles of association having been placed each year to reserve, and ample amounts written off under depreciation and other heads. Mr. Boyle contemplates a fourth circuit of the globe in the new year, which will practically complete the important work of extension. It is worthy of note that the expiry of the guarantee has not been associated with any diminution of the profits of the company, but this and all that distinguishes the company from less fortunate enterprises is probably explained by the fact that Mr. Boyle holds three-fourths of the capital. There could be no better guarantee for the future than this."

MEETINGS FOR THE ENSUING WEEK.

Monday.—Society of Engineers. "The Drainage of Town Houses," by G. M. Lawford. Westminster Town Hall. 7.30 p.m.
Surveyors' Institution. "Party and Party-Fence Walls," by C. H. Bedells. 8 p.m.
Society of Arts. Cantor Lecture No. 2. "The Pigments and Vehicles of the Old Masters," by A. P. Lawrie. 8 p.m.
Liverpool Architectural Society.—"Egypt as a Home of Early Art," by Rev. F. F. Grensted. 7 p.m.

Tuesday.—Society of Architects. "The Legend of Beauty," by Wyke Bayliss, P.R.B.A., F.S.A. The Suffolk-street Art Galleries, Suffolk-street, Pall Mall. 8 p.m.
Institution of Civil Engineers. "The Sale of Water by Meter in Berlin," by Henry Gill. 8 p.m.

Wednesday.—St. Paul's Ecclesiological Society.—Meeting at St. Paul's Chapter House. 7.30 p.m.
Society of Arts. "The World's Columbian Exhibition at Chicago, 1893," by Jas. Dredge. 8 p.m.
Dundee Institute of Architecture. "Electric Lighting of Houses," by F. Grant Ogilvie. 8 p.m.

Friday.—Architectural Association. "Suggestions for the Practical Education of an Architect," by T. Graham Jackson. 7.30 p.m.
Institution of Civil Engineers.—"Meters for Recording the Consumption of Electrical Energy," by C. H. Wordingham. 7.30 p.m.

The Society of Architects.—The THIRD ORDINARY MEETING of the SOCIETY OF ARCHITECTS for the Session 1891-2, will be held at the Suffolk-street Art Galleries, Suffolk-street, Pall Mall, S.W., on TUESDAY, December 8, 1891, at Eight o'clock p.m., when a Lecture will be delivered by Mr. WYKE BAYLISS, F.S.A. (President of the Royal Society of British Artists), entitled "The Legend of Beauty: a Plea for Art as an essential Element of the Complete Life."
EDGAR FARMAN, Hon. Sec.
G. A. T. MIDDLETON, Secretary.

CHIPS.

A large clock has just been erected in the parish church at Tilney All Saints, Norfolk, which plays the Westminster quarter-chimes, strikes the hours upon a large bell, and shows time on one dial. It has been manufactured by Messrs. John Smith and Sons, Midland Clock Works, Derby, to the designs of Lord Grimthorpe. The same firm are also now making other similar clocks for Aston Cross, Birmingham, Little Wenlock, and other places.

The parish church of Langton, near Horncastle, was reopened last week after restoration, including re-roofing. The pulpit, reading desk, and lectern have been carved in oak by the rector, the Rev. J. C. Walker, as memorials to his late father, who held the same incumbency for many years.

The Waltham Abbey local board have applied to the Bishop of St. Alban's for a faculty for taking away a large portion of the churchyard attached to the Abbey Church for the purpose of widening one of the streets. His lordship has, however, declined to grant the faculty applied for.

A Local Government Board inquiry was held on Wednesday week at Combmartin by Mr. S. J. Smith, as to the application from the Barnstaple rural sanitary authority for sanction to borrow £1,600 for works of sewerage for the village. Mr. Arnold Thorne, surveyor to the authority, explained the plans which he had prepared, and which showed a main sewer discharging into the sea at low water by gravitation.

In the Randolph Hall of Glasgow University, on Friday, Mr. John Nichol, who was the first Professor of English Literature in that University, and occupied the chair from 1862 to 1889, was presented with his portrait. The portrait, which is half-length, is the work of Mr. W. Q. Orchardson, R.A.

DUNLOE, WEMYSS BAY.

FOR N. B. STEWART ESQ.

Messrs Honeyman and Keppie Archts



PLAN of GROUND FLOOR

PLAN of FIRST FLOOR

Scale of Feet

120 BATH ST GLASGOW.

E. Chancellor del.

from Pencil Sketch by A. McGibbon



BENTHALL · HALL · AND · PRIOR'S · HOUSE · MUCH · WENLOCK ·

FROM · PHOTOS · BY · J · L · ROBINSON · A · R · H · A ·



PHOTO-TINT" by James Akerman, 6, Queen Square, London, W.C.





LOGGIA OF RAPHAEL AT THE VATICAN · ROME

"PHOTO-TINT" by James Akerman, 6, Queen Square London W.

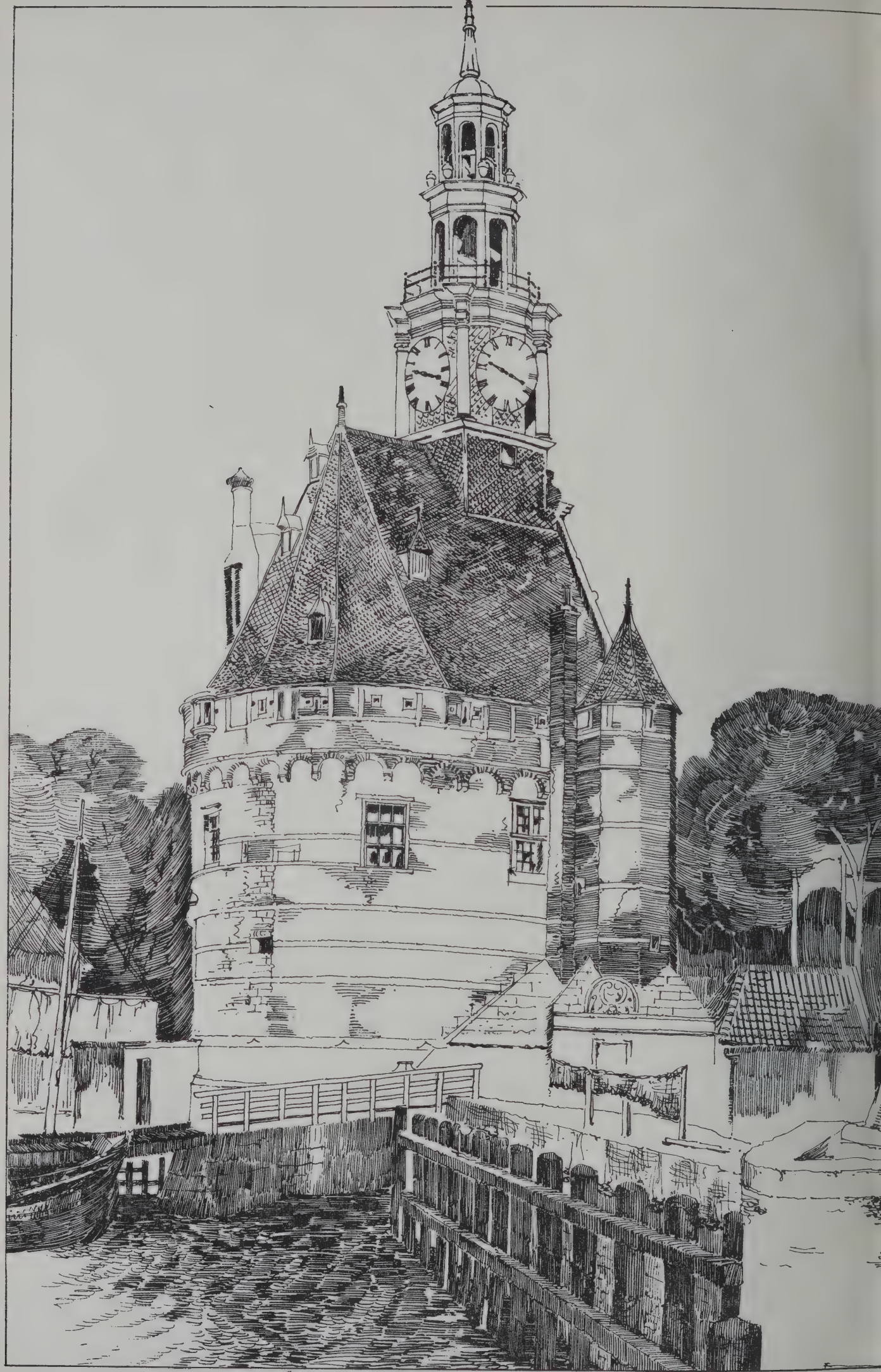
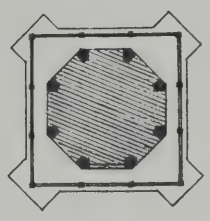
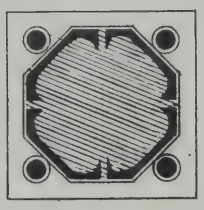


Photo-Lithographed & Printed by James Akerman, 6, Queen Square, W.C

THE WATERGATE
HOORN. HOLLAND.



PLAN AT A



PLAN AT B.

NB The measurements of clock turret are only approximate. The bricks measure 2¼"x3¼" and run 5 courses to 11¼ins.

THE FRONT

ROBERT W. PRATT. DEL

F. BROWN DEL 1891

0 5 10 20 30 40 FT.


Messrs J. Fuller's
COACH
FACTORY
BRISTOL.
EDWARD GABRIEL
(EDMESTON & GABRIEL)
ARCHITECT.
Roof over Smithy
Carriage Lift
Second Floor Plan
Scale of 10 0 10 20 30 40 50 Feet



NEW·BANK·AND·SUITES·OF·OFFICES·GOOLE·FOR·MESSRS·BECKETT·AND·COMPANY · HENRY BELL THORP, ARCHITECT, GOOLE.

BUILDING NEWS
) ENGINEERING JOURNAL.
VOL. LXI.—No. 1927.
RIDAY, DECEMBER 11, 1891.

RCHITECTS LIABLE FOR OMISSIONS.

RE seems to be a general impression at an architect is entitled to make alterations in the carrying-out of a g contract without the consent of his No doubt custom has given a sanc- various acts which are supposed to ıe employer. For example, in the ɔn of a contract, it may be deemed y to order extra labour in the ions, should the circumstances re- ınd the architect appears to have a ed authority to do that which seems absolutely required, in the interest of loyer, for the safety of the building. similar reason, circumstances may the omission of something specified ded in the bill of quantities, and the t, as an agent of the employer, eem it to be within the scope employment to give his sanc- the omission of some item, ıat of a concrete foundation. ıot so clear that a Court would this opinion, as the decisions that ɔen given are somethat conflicting satisfactory. If we suppose that ng has been omitted like the concrete ion, through the neglect of the t in seeing it put in, there would be le doubt that the owner would have ground to complain, and refuse to d by his architect's decision, and the ıse of "Rogers *v.* James," decided the ıy before the Court of Appeal, is of to every architect who imagines that worded in such a manner as to place uestion which may arise during a in his own hands, as between him- his employer, is final. In other contract clause as that often intro- ves the architect no power to bind ployer or to prevent him from an action for negligence if he it. The case to which we allude ıeral interest to the profession, and rd by the Master of the Rolls and ustices Lopes and Kay, the facts ɔeing these. An architect brought n to recover £123, balance of an or services rendered to the defendant ection of a house at Bromley, Kent. er counterclaimed for damages for ce on the ground that the plaintiff properly supervise the building, in ɔnce of which the builder omitted to in concrete into the foundations and rk. The plaintiff denied negligence, d that in giving his final certificate ted £82 in respect of the omissions sum certified to be due, and he d that this certificate was binding defendant under a certain clause of ract, which provided that the de- the architect with respect to the state, and condition of the works , and in respect of any and every that may arise, shall be "final and appeal." The action was tried at e, when the jury found that the had been guilty of negligence, and erdict for the plaintiff on the claim nd the defendant on the counterclaim The plaintiff thereupon moved for on the counterclaim, or for a new was contended for the plaintiff certificate was binding upon the , and the reduction of £82 from the ble to the builder was conclusive as laintiff and defendant. The Court dismissed the motion without calling on counsel for the defendant, and the Master of the Rolls said that, the jury having found negligence, the only material question arose upon the counterclaim. Upon the question of certificate being final as between building owner and architect, the Master of the Rolls said such was not the law. "The certificate was final as between building owner and the builder. Any question as between the building owner and the architect would not be decided by that certificate. As between the building owner and the builder, the architect had, in the honest exercise of his judgment, awarded a sum which the building owner could not question. As against the architect, the building owner could question that. The jury had found that the architect was negligent, and that he had not awarded sufficient." The judge was satisfied with the verdict, and a new trial was refused. Lord Justice Lopes concurred. He said the contract clause gave the architect no jurisdiction to decide any question of negligence as between himself and the building owner, and the latter could bring an action for negligence against the architect. The jury found that the £82 allowed by the architect was not sufficient, and they awarded the owner a further sum from the architect. The judge was satisfied with the verdict, and that Court could not disturb it. Lord Justice Kay also concurred.

The decision places beyond dispute the dictum that an architect's final certificate is not binding upon the building owner when there is a disagreement between them; it is final only between the two parties to the contract, for, as Justice Lopes stated, the clause of the contract gave no jurisdiction to the architect to decide any question of negligence between himself and the building owner. But there is a general opinion that the architect's final certificate is binding upon clients, and this view appears to be upheld by the case of "Laidlaw *v.* Hastings Pier Company," in which the decision of Lord Chief Justice Coleridge was to the effect that when an architect or engineer is clothed with certain powers, and when he exercises them, they are to be conclusive on the owners who have placed their own agent in the position of control. In this instance the engineer's certificate was held to be conclusive against the owners. The clause vested exceptional powers in the engineer's hands. But the usual arbitration clause as to disputes between architect and the contractor applies to disagreements between these parties only, and not disputes which may arise between employer and his architect. The circumstances of the case as reported are at least of instruction; the architect finds the builder has taken advantage of his absence in omitting certain concrete, and deducts a sum from the final certificate for the omission — whether it is sufficient or not is another matter. The defendant makes a counterclaim for negligence, and practically claims again for the omitted work by making the architect liable. The law supports the allegation by declining to accept the final certificate. They are at least facts which should teach architects something. That they are held responsible for omissions by the builder, whether through neglect or by taking advantage of the architect's absence, there cannot be any question. It is equally certain that final certificates given under a clause reserving full powers to the architect will only be final between the building owner and the builder. We can well imagine a number of things left out during the progress of work, of which the architect knows nothing; the contractor may think the omitted work unnecessary, or he may try to evade the specification. It would be a hardship to hold the architect liable for these omissions, or to say that they are owing to his neglect. Yet it is equally unfair that the employer should not have the proper deductions made. The only way of avoiding these alternatives is the employment of a clerk of works.

BATTERSEA TOWN HALL COMPETITION.

CONSIDERING that the proposed Battersea Town Hall and Parochial Offices will be a large and important undertaking, and will occupy a commanding site on Lavender Hill, it is to be regretted that the vestry has not deemed it desirable to exhibit the whole of the twelve designs submitted in competition, particularly as the merits of not a few entitle them to the privilege of a review by the professional journals. We are, therefore, compelled by circumstances to describe only the first and third designs. Many of the competitors feel that they have not received the attention and consideration which their efforts deserve. The conditions issued to competing architects give a rough scheme of plan which has been followed by many. The fall of the ground northwards of the site has been well utilised in some of the plans. Mr. E. W. Mountford's design, marked "C," of which we are able to give a perspective view, and which has been finally selected, shows a well-studied and skilful distribution of the offices, with spacious roadways. The author has taken care to provide good approaches and entrances to the parochial offices and public hall on the south and eastern sides, and so to economise the area of the site as to leave room for future extension or building—a consideration which no doubt duly weighed with the assessor, Mr. W. Young. Mr. Mountford has connected the official portion of the building with the public hall by a one-storied vestibule and hall, by which communication between the offices and hall is secured, while at the same time the integrity of each building is maintained, and, if need be, the hall can be shut off from the official block for general assemblies and public gatherings, the public being admitted by a *porte cochère* or projecting carriageway, which is made a nice feature in the design—though we hear this projection will be omitted in the amended plan. The axis of the public hall slightly deviates to the east. The plan, as sent in, has a recessed centre, with circular porch; the entrance is central, and leads between two waiting-rooms into a large hall, 56ft. by 28ft., having the flight of main staircase opposite the entrance vestibule, with right and left wing flights. From this hall proceed two lateral corridors, which extend uninterruptedly northwards, giving side access to the offices and to the large hall, where they are 9ft. wide. Taking the west side of official block, we have the vestry clerk's offices at the front angle, slightly projecting as a wing, with circular corners in the façade, north of them coming the churchwardens', the trade accounts' and the rate collector's offices at the end. The east side is taken up in the same order with the surveyor's offices, forming a corresponding front wing at corner, and the medical and sanitary departments. There is a convenient entrance from the side road, between the surveyor's and medical departments, to council chamber, and, a little further on, another side entrance to coroner's court above. All these offices are well lighted from the side roads, and the corridors from a central courtyard, which occupies the space between them. Behind the staircase are placed a block of lavatories, excellently ventilated into the courtyard. The importance of having separate entrances to the surveyor's and sanitary department cannot be overrated, and the vestry offices are also near to the main entrance and staircase. The public hall is 98ft. by 59ft., exclusive

of platform recess at the north end. There is a reception-room near the domical hall, which will serve as a crush-room, and the entrances to the hall from side corridor and the exits along the latter to the outside are ample.

On the upper floor of the parochial offices is the council chamber, 55ft. by 35ft., forming the whole recessed portion of the façade, with a spacious committee-room on the west, and a members' library at other end, occupying the wings. Along east side is a members' cloak-room, committee-room, and coroner's court, 40ft. by 25ft., at the north end. The staircase to gallery is at the south-west angle of the hall. The landing of main staircase opposite council chamber is well planned. Side flights give access to two galleries, which return on each side to the council chamber, and a pleasing feature is made of this arrangement. The sections show well-studied features; a three-centred elliptical ceiling of fibrous plaster over great hall is divided in seven bays by ribs encasing the iron principals. The hall block, owing to the fall of ground, has been utilised; the second and third halls are below the large one. The council chamber has also an elliptical ceiling. Ventilating exhausts are shown. The elevational treatment is in a Free Renaissance brick style, effect being given to the front by a high hipped roof, with cupola, pilasters, and boldly-projecting wings. Space prevents our giving a detailed description of the second premiated designs, by Mr. Henry A. Cheers, owing to its removal; but the general plan is well conceived, and the elevation, which we shall illustrate, is ably treated in its parts; a centre and wings, with stair approach to first-floor level, are striking features.

The third premiated design (M), by Messrs. Reed and Macdonald, Oxford-street, has a clever arrangement of parochial offices; the block of buildings is rectangular, with an imposing front elevation, and forms a hollow square, with staircase, lavatories, and conveniences, making a projecting block in the centre, round three sides of which is an area for light and air. On the ground floor is a central entrance vestibule with waiting-rooms on either side, one for auditors, access to which is obtained from a spacious entrance hall, which extends in length the whole distance between the side blocks, and is 23ft. wide. Adjoining these waiting-rooms, and forming slightly projecting wings in front, are the vestry general office on the west side, 26ft. square, and the surveyor's general office at the east end, of the same dimensions, these rooms being entered from the same hall. The western block, which faces the return side, comprise in the following order a strong-room and w.c., the vestry clerk's private room, the vestry clerk's office, a staircase specially intended as an access to the coroner's court on the next floor, then a room for trade accounts, and a churchwardens' room at the end, all these rooms approached by a corridor from the main hall. A like arrangement on the east side is appropriated to the surveyor's office, his drawing office and plan room, staircase, medical officer, and sanitary inspector, respectively. The rear block between these side ranges comprises the rate collector's office, 38ft. 6in. by 21ft. The central staircase, facing the main entrance, and the cloak and lavatories block are in the centre axis, and are compact and well lighted and ventilated by the area. On the upper floor in the front is a council chamber 55ft. 6in. by 35ft.; this extends partly over the hall below, the inner wall being carried by a range of six columns, which divides the hall equally. At the two ends of council chamber are committee rooms. The upper floor over west wing contains the coroner's court, 34ft. 6in. by 30ft. at the rear end, with coroner's room and witnesses' waiting room, and on the east side a members' library or tea-room, and the residential apartments for housekeeper, with separate entrances, at the north end. This plan, therefore, is ⊔-shaped, the rate-collector's block not being carried up. A good side staircase entrance is provided for the coroner's court, which will be used for those specially attending cases without having to go through the main corridors. The public hall block is ⌋-shaped; the vertical portion forms the hall, approached by side corridors, and separate entrances at the south end. The hall is 88ft. 9in. by 48ft.; the north end has rounded corners and platform. The main entrance to it at the south end next to the rear of the parochial offices has a spacious inner hall, adorned by coupled columns. Ladies' and gentlemen's retiring-rooms are placed on either side of entrance-hall, and there is a covered colonnade approach to the three main entrances, the two side ones being corridors. The other portion of the block comprises a second hall 40ft. by 25ft., with reception-rooms, serving and retiring rooms. The main side corridors to public hall are lighted by skylights, and the front retiring-rooms are also lighted by the same means. The elevation and the sepia perspective of the parochial office block represent a Renaissance treatment; the centre recessed portion of front is enriched by engaged columns between circular-headed windows. This portion is emphasised by a high-hipped roof with centre cupola, while the wings are surmounted by ornamental parapets. The general treatment is in a plain style of brick and stone. The sections show some good detail in the interior treatment of hall and council chamber; the public hall is coved, and intersected by groins for side lights. A clever arrangement for public gallery to council chamber is obtained over councillors' corridor on the first floor. Air-pump ventilators are shown over the great hall. It is a pity so good a plan of offices should have been spoiled by the narrow roadways shown round the main block, which measure only 13ft. in some cases.

PARTY AND PARTY-FENCE WALLS.

At the ordinary general meeting of the Surveyor's Institution, held on Monday evening last, an interest paper on the subject of "Party and Party-Fence Walls" was read by Mr. C. H. Bedells (Fellow). In commencing, the author alluded to the Code Napoléon of France and the Code of the United States, which, he said, "both deal in a more or less comprehensive way with these questions, but have, so far as I know, no parallel in our English Statute-book, except in isolated instances, such as the provisions of the Building Acts in force and operative within the Metropolis and some few towns, and even these are by no means comprehensive. It may be interesting to you if I briefly note one or two of the provisions of the French law. Article 646 gives every proprietor the right to compel his neighbour to determine the boundaries of their contiguous properties, such determining to be at their common expense. By article 653, in towns and fields, every wall which serves as a boundary between buildings, even to its base as between courts and gardens, or even between inclosures in the fields, is to be presumed 'party' if there be no title or mark to the contrary. 655. The reparation and rebuilding of party-walls are to be at the expense of all those who have any claim thereto, and in proportion to the claim of each. 663. Each inhabitant of a town or suburb can compel his neighbour to contribute to the construction and reparation of the inclosure forming the boundary of their houses, courts, or gardens situate withing the said towns or suburbs. The height of the inclosure is to be fixed according to particular regulations or constant and acknowledged usages, and in default of such usages and regulations according to the direction of the Code." In the United States there were officials known as "fence viewers," and the Statutes regulated the erection and repair of boundaries. Persons liable to contribute be sued for non-repair, and in defau one party the other could repair an cover. A new boundary might be erected on one's own and half on one's neighbour' We shall, said Mr. Bedells, clear the if we start with an attempt to answer the qu "What is a party-wall?" Mr. Justice the case of "Watson v. Gray," describ term "party-wall" as a "popular rather legal one," and one which appears to be four different senses. First, as describing erected on land belonging to owners of adj lands in equal moieties as tenants in co This is the most ordinary case, and, if th boundary line between say, two houses, be ascertained either by documents or ownership, the law will infer that t ownership in common of the wall and of i so that the owner of each house has not a s and distinct half, but an undivided mo both the wall and the soil on which it st the user of the wall by two proprietors *primâ facie* evidence of its being their c property. Then in the case of a party-wa under tenancy in common, what were the of the respective tenants in common, an their liabilities? Neither party might ra wall so as to increase the burden upon it o fere with his co-tenant's user without perm Should one tenant heighten the wall, th might knock off or remove the addition. other hand, he might rebuild the wall, if n without subjecting himself to action for t though the textbooks do say that an ac the case in the matter of waste might li such circumstances, or in any other wh tenant in common misuses the commo perty. There was no common-law r underpin or undermine party-walls, u could be done without injury to the neig house ("Bradbee v. Christ's Hos Secondly, where the wall is divided into tudinal halves, one half standing on the each of two adjoining owners. Wh boundaries of the land of adjoining owne known, the common law on the subject the property in a party-wall built expense followed and was the same as the land on which it stands—in the con tion of the law, in fact, it was treated constituted two distinct walls. In this ca pose one owner wanted to add, say, a sto house, he might raise upon his half of t without asking any permission of his ne He would be liable for any damage his neighbour's premises by anyth might do to the wall, or if accident through its ruinous and unrepaired co Of course, if a man erected a wall half on and half on your ground, you might p what was upon your land, though in so d remainder tumbled down, and if on raised a wall on both moieties you migh the part erected upon your own; but wall had long stood between two premi on the lands of two owners, it seemed, in settled recognition of a possible right of we must treat it for practical purposes a under what Mr. Justice Fry in 1880 before "Dalton v. Angus") made h division, but which I prefer to deal wit viz., a wall longitudinally divided, eac being subject to an easement of user owner of the other moiety, and in su neither owner would pull down his ow of the wall without being liable for d the rights of the other. The other r class (borrowing again from Mr. Jus was where the term "party-wall" wa to a wall which belongs entirely to o owners of adjoining land, but which is s an easement of user belonging to the oth rights here of the parties, of course, unequal; the owner of the dominant had the right to use, but could not in use without consent, could not deal with under the wall, nor hamper the adjoini in his use thereof so long as the limited maintained and provided for. An eas this kind was a very awkward thing deal with, seeing that, if user were perm acknowledgment was given that it was and not as of right. With party-fen as with party-walls, questions of limit o boundaries, as to who originally co the wall, and acts of ownership were In the Act of 14 George III. cap. 58, adjoining each other with independent

first time contemplated, and for the first ron doors were required to openings in walls. Section 28 determined for what es a party-wall might be cut into *without* —viz., for inserting the end of a new back nt wall, a brestsummer or story posts, in stone steps or stone landings or timbers arers for wood stairs, stone corbels for ey jambs, girders, beams, "purlings," g or trimming joists or other principal s, perpendicular recesses into any party- ot less than 13in. thick for walls and piers n (subject to restrictions), and for cutting tings. "But any person who shall cut party-wall for any of the purposes afore- all immediately make good and well and ally pin up with brick, slate, tile, shell, or edded in mortar every defect which shall asioned by the cutting of any such party- and no party-wall shall be cut for any of rposes aforesaid if the cutting thereof will , displace, or endanger the timbers, eys, flues, or internal finishings of the ing buildings." Party-walls might be if, when so raised, they were conform- o the Act. If the owner on the other nake use of the raising, he must con- to the expenses. The form of party-wall is much the same as before, only it is im- t to remark that party-fence walls were ed, as well as party-walls and party-arches. party-fence walls might be raised by the of one side, but were not to be used as walls unless of sufficient thickness. If not owner might pull down such fence-wall ce, and build a party-wall in lieu thereof, ojecting more, however, than 7in. beyond ntre-line. The adjoining owner must con- to the expense if he use it other than as e-wall. We now come to the last of the o longer in force—viz., 7 and 8 Vic. cap. 44). For the first time we get a definition t a party-wall is, and this definition, as he definitions of building and adjoining , are continued in effect in our present ng Act of 1855. The provisions of the pply to the reparation, rebuilding, and of party-fence walls, in respect of which e is required to be given of either one or months. The Act assigned to official es and district surveyors many of the duties now devolve upon the "three surveyors." orthy of note that in the case of rebuilding a party-wall by a building owner, this Act upon him not only the whole cost of the nd of making good to the adjoining owner's es and the payment of all surveyors' fees, gave to the adjoining owner a right to reasonable compensation as to the said referees may seem proper for any loss the adjoining owner shall have incurred son of such work." The Act also dealt subject which is still a source of some lty—viz., the building of an external wall t a party-wall, and the subsequent rights parties in the old party-wall left standing, the ground upon which it stands, matters , within certain limits, were left to the ination of the official referees. Section 31 d party-walls to be raised, and, as in us Acts, gave a clear and unmistakable to the original adjoining owner to use a party-wall, and a clear and unmistakable to the original building owner to be repaid portionate part of the cost for the portion was so used, and of the chimney-stacks ging thereto. The powers given in the us Act with regard to party-fence walls largely continued in the Act under con- tion; and, in the main, I think, were able and useful provisions. A building before building on a vacant site, where the ding site also was vacant, had to give previous to the adjoining owner, and, if the latter ected, the building-owner was bound to his wall as a party-wall, a clause the repeal ich there is no reason to regret. To ex- the question in the light of the Metropoli- Building Acts now in force:—"What was y-wall under the Building Act?" The Act es the definition:—"Party-wall shall apply ry wall used, or built in order to be used, as aration of any building from any other ng, with a view to the same being occupied fferent persons." In dealing with party- under the Metropolitan Building Act, it ot, as a general rule, needful to determine, uld seem, whether the parties had divided livided moieties in the wall; whether the wall was the property of one party with an ease- ment by the other of user; whether the wall was used by two owners as tenants in common, all which considerations were material in questions affecting party-walls, in districts where the common law and not statute law is in opera- tion. But if in part a wall were a party-wall was the whole of the wall of necessity a party- wall? No, for it had been held that, so far as those buildings extended on both sides of the wall, it was a party-wall within this Act. Then as to height. The Bristol case of "Watson v. Arnold," Law Reports 8 Ch. App. 1084) was given in the Digests as useful, though only by analogy. It was a case under a Local Improvement Act, and it was held that a wall might be a party-wall to such a height as it is common to two buildings, and cease to be a party-wall for the rest of its height. In view of the Metroplitan Buildings Act defini- tion of the party-wall, the author did not see how the upper part could be said to be "used" or to be "built to be used" to separate, with a view to occupation by different owners, and therefore be a party-wall, but in the face of the recent case of "Williams v. Bull," to be here- after referred to, it would seem the upper part of a party-wall must be so regarded, for the present, at all events. The Act defined who were owners, and who the building and adjoin- ing owners ("owners" being used not in its strict sense, because there is no individual owner- ship). "Owners" applies to every person in possession or "receipt either of the whole or any part of the rents or profits of any land or tene- ment, or in the occupation of such land or tene- ment, other than as a tenant from year to year, or for any less term, or as a tenant at will," and the owner desirous of executing any work in respect of the party structure, shall be called the "building owner," and the owner of the other premises shall be called the "adjoining owner." But no owner on a new foundation might erect half his flank wall on his neighbour's vacant land, "Barlow v. Norman," and not only if he does so might his neighbour use it without pay- ment, but he might remove the part standing on his ground. It was often said that where the Building Act Clauses are not specific the "owners" must find their rights and remedies at common law. But it was needful to learn that the rights given by the M. B. Act are in substitution of those which exist at common law, and are not merely an addition thereto. The rights given to the B. O., "these are the only rights he has, and where by common law he has in ordinary cases a right, he has not in the Metropolis if the common law right is not covered by these rights." "I may here say," continued Mr. Bedells, "that without notice a building owner, it seems, cannot do anything to his own side of the wall, even if it belongs wholly to him and yet is a party-wall under the Act. This seems hard. 2. A building owner may pull down and rebuild a party-wall if it is so far defective or out of repair as to make it necessary or desirable on the same terms as to cost. 3. He may pull down any timber or other partition dividing the build- ings that is not comformable to the Act, or to either of the older Building Acts which next preceded this Act, and build a proper party-wall instead, each owner bearing his due proportion of the cost according to the use he makes of the wall, and also as to the thickness of wall which his building requires. I conclude the additional thickness may be halved between the two owners or divided in proportion to their use thereof. 4. In the case of buildings having rooms or stories the property of different owners inter- mixed, a right to pull down such of the said rooms or stories, or any part thereof, as are not built in conformity with this Act, and to rebuild in conformity with this Act, on the same terms as to cost. This clause seems to require further explanation. 5. A right to deal with buildings communicating over public ways. 6. A right to raise at the building owner's ex- pense any party structure, permitted by this Act to be raised (that, I take it, means—when, by raising the wall, the lower part is thick enough to pass the schedule for such heightened wall), or any external wall built against such party structure at his own cost, and upon con- dition of making good all damage occasioned thereby to the adjoining premises, or to the in- ternal finishings and decorations thereof, and of carrying up to the requisite height all flues and chimney-stacks belonging to the adjoining owner, on or against such party structure or external wall." "In the case of 'Stokes v. Standard Bank,' the word 'raise' was interpreted as wide enough, in conjunction with other clauses fol- lowing, to cover lengthening the wall in a *downward* direction. 7. He may pull down any party structure that is of insufficient strength for his intended building, and rebuild it of sufficient strength on the like condition as to cost and as to making good damage to adjoining premises or to the internal finishings and decorations thereof. 8. He may cut into any party structure at his own cost, and on condition of making good damage to adjoining premises. 9. He may cut away any footings, chimney-breast jambs or flues projecting from the party-wall in order to build an external wall against it, or for any other purpose, on the same conditions as to payment of cost and damage. And although they are upon his side of the wall, he cannot deal with them without a proper award under the Act, nor cut away the shafts or chimney-breasts without the certificate of the district surveyor. 10. A right to deal with a wall overhanging the ground of building-owner. 11. A far-reaching clause, giving a right to perform any other necessary works, incident to the connection of a party structure, to premises adjoining thereto." The facts of a case which raised an interesting question under the Metro- politan Building Act, 18 and 19 Vic. cap. 122, were as follows:—On May 29th, 1884, the plaintiff served on the defendant a notice, under the Metropolitan Building Act, that he intended to pull down and rebuild the party-wall then existing between the houses of the plaintiff and defendant, and in pursuance of that notice he pulled down the wall. The plaintiff then rebuilt the wall, partly on his own and partly on the defendant's land, to a greater height than the defendant's house. On February 6th, 1885, the defendant served on the plaintiff a party-wall notice, and in pursuance of that notice he pulled down his own house, erected a new house, raising it to a greater height, and for that pur- pose cut into and used the external wall which had been previously raised by the plaintiff. The wall was built for half its thickness upon land of the defendant's, and it was therefore con- tended on his behalf that it was a party-wall. The plaintiff, on the other hand, contended that it was an external wall, and the defendant was not entitled to make use of it without paying for the portion of the wall so cut into and used by him. Counsel for the plaintiff argued that the wall in question, so far as it did not separate buildings, was an external wall and not a party- wall, that the provisions of Part 3 of the Metro- politan Building Act did not apply in the absence of a notice by the defendant under the Act specifying the wall the defendant cut into, that a wall might be a party-wall for some of its height, and above that the property of the adjoining owner. The defendant had no further rights than were given by the Metropolitan Building Act, the effect of which was to limit the right of owners in the interests of the public. Whether the wall was half on the land of the defendant was immaterial, for the external wall was by statute, for the purposes of the present case, the property of the plaintiff. Counsel for the defendant argued that the case was covered by Sections 84 and 93 of the Metropolitan Building Act (18 and 19 Vic. cap. 122). The adjoining owner was only liable for expenses incurred by the building owner upon his requisition. When a party-wall which was not defective was pulled down and heightened, the building owner must incur all the expenses. Mr. Justice Matthew, in giving judgment for the defendant, said he could not find any grounds of the liability for which the plaintiff had contended. The sections of the earlier statutes referred to had been repealed, and were not incorporated in the Metropolitan Building Act. Under the Building Act, 1855, the whole measure of liability was that, where any building owner had incurred any expenses on the requisition of the adjoining owner, the owner making such requisition should be liable for all such expenses. To say that the expenses were not to be borne by the building owner seemed to be supplying in the Building Act what was not there. Judgment was given for defendant with costs. On moral grounds the decision is unfortunate, for supposing the wall from the height of 1ft. 3in. above the lower building upwards is an "external wall" and not a "party-wall," what right has the owner of the lower building

to serve a party-wall notice, or to use such wall at all against the wish of the owner of such external wall? Be this as it may, the moral of the uncertainty appears to me to be that, until the law is amended or authoritatively expounded, it is most desirable that when any party-wall is raised it should be determined under what conditions the adjoining owner may use the raised wall, or some agreement independent of the award be arrived at between the building and adjoining owners on the subject. Upon party-walls as dangerous structures, the author had little to say. First, the condemnation of a party-wall as "dangerous" acts as waiver of the three months' notice, as well as rendering the adjoining owner liable for expenses of wall rebuilt, hence the well-known, but discreditable, practice of endeavouring to induce a district surveyor to condemn a doubtful wall as dangerous. One difficulty I have observed in practice I may refer to. In a case where the County Council serve dangerous structures notice upon a lessee for a short remaining term of years with no covenants on the part of lessor or lessee specifically referring to party-walls, the County Council serve the occupying lessee. In such a case, though probably not liable, at all events not to the full extent to his landlord, the onus of complying with the notice lies upon him, and if, in default, the County Council do the work, he is saddled with the expense, for in such a case the "one owner" cannot require that the other owners shall be summoned ("Debenham *v.* Board of Works"), with or without the vexation attendant upon summons for recovery of the same and penalties, &c., while he has no very long term or considerable interest in the premises, and little prospect of recovering the money from his lessor unless by means of more or less costly and uncertain litigation. Probably the path of wisdom in such a case, although not one relished by the surveyor or his client, is either to do no more than absolutely needful to comply with the notice, or make the best terms with the lessor. If the outlay is serious, a lessor can often be persuaded into granting an extension of term. If so, the hardship, as it is thought, is less felt, probably, on both sides.

A discussion on Mr. Bedell's paper, followed by a unanimous vote of thanks, brought the meeting to a close.

THE ARCHITECT AND HIS ARTISTS.

At a meeting of the Sheffield Society of Architects and Surveyors, held on Tuesday evening, a paper entitled "The Architect and his Artists" was read by Mr. William H. White, Sec. R.I.B.A. The author explained that he used the word "artist" not in the exclusively æsthetic sense which it now possesses, but in the sense of a handicraftsman—the sense in which it was understood from the fall of the Roman Empire till the close of the reign of Louis XIV. Not the least remarkable result of all the researches yet made into the history of ancient and mediæval buildings was the uncertainty of their original in respect of design. There were certainly records of men in the 14th and 15th centuries who were imported from one country to another to reconstruct or superintend the reconstruction of cathedrals and other buildings. But who, or what the men were who, in the 12th and 13th centuries, inspired the design of structures, absolutely identical in arrangement and methods of construction, though situated at remote distances from each other, in different countries, and among different peoples, was still matter of inquiry and surmise. About 1874 Mr. Emmett, an architect, propounded the theory that these mediæval buildings were planned and designed by the "inspired" workman, without the intervention of an architect, and the lecturer suggested that Mr. Norman Shaw's arguments on the question, "Architecture: a Profession or an Art?" tended to show that, if the public wanted "artistic" architecture, they must employ three men instead of one to advise them how to do it—an architect, an engineer, and a surveyor. For himself, he thought that the "inspired workman" of 1874 was less difficult to believe in than the "inspired draughtsman," regarded in 1891 by a limited circle of mutual admirers as the only possible architect. The lecturer held that it should not be the grouping of pupils around a specialist, to study theoretically the speciality he practised, but the study by all young artists of the one grand art, architecture, on the buildings themselves, in daily converse with the executants, under the eye of the master or his elder disciples—a system of which only a rudiment remained in England, but which still existed in France, though in a modified and restricted form. France, moreover, had preserved that custom of continuity among the craftsmen in the various building trades, and thus had, to some extent, insured herself against such strikes as we now witnessed in England. In Paris, and France generally, the architect was the sole and supreme master of the work, and his relations with the master-workmen were constant and direct. He made his contracts, not with one capitalist, but with a dozen master-tradesmen, who each worked under his direction, and who looked to him only for orders to fix materials and assist each other at the several stages of the work. This fact rendered it essential for an architect in France to be a constant visitor on the works with the superintendence of which he was intrusted. The consequence of this system was that the business of architecture was more equally distributed in France than in England: the architect took less work and made less out of it, for it cost less in execution. Obviously, there were fewer rich architects in Paris than in London; but the average income of architects in the French capital was larger than in the English one. At the same time his honorarium was less, and it was subdivided as follows:—Preparation of the design, specifications, and estimates, 1½ per cent.; conduct of the work, 1½ per cent.; and verification and settling of the accounts, 2 per cent. If, said Mr. White, the British public were only as shrewd as foreigners thought them to be, they would pay the "artist-architect" 2 instead of 5 per cent. for his work, and then there would be less heard about the art to the exclusion of the science and business than at present. One of the disadvantages of the English system of general contract was that "provisions" had to be made in contracts for works to be intrusted to the specialist, and on these the general contractor exacted his profit of, say, 15 per cent., the quantity surveyor his commission on both items of 2½ per cent., and the architect again charged his honorarium of 5 per cent. on the total amount, so that on a provision of £500 the sum it would cost the client would be £618 17s. 6d. If the architect were, however, to arrange with the craftsmen independently of any contractor for work to the value of £500, he might save his client nearly £94, and still receive £25 for his design, superintendence of the work, and final revision of the account. The general contract system, introduced by the Government early in the century, had largely aided the development of manufacturers' discounts—sometimes ludicrous in their proportions—from which the contractor derived his wealth; and not, as his men often alleged, from sweating them. He hoped that the general contractor might one day be dispensed with altogether, not only for the sake of the architect and his artists, but also for the sake of the art itself. Of course, there was a danger to be guarded against in any reversion to the old question of an architect as the employer's agent, purchasing materials and employing labour, and care should be taken that the present desire for the unity of the arts did not result in commercial union. Having pointed out that the mediæval guilds did not teach, but merely examined, and that the technical education of those days was an affair of master and apprentice, the author showed that it was only on the decay of the guilds that academies were formed, and a few artists in the same profession were, by personal favour, set above their fellows. He held that there were excellent reasons for preferring the principle of the mediæval guild to that of the modern academy, and that it was better for architecture that it should be a "profession" of average ability rather than consist of a few academic "stars." In conclusion, Mr. White said: "The experience of the past half-century suffices to show that the architectural art which a comparatively recent generation believed to be good, the succeeding generation believed to be bad; and architectural art of the modern type applied to a building seems to be neither tangible nor capable of progressive development. Scientifically and artistically constructed buildings are what the educated public want, and if they are sometimes hard upon an architect, it is because of his bad building, not of his bad art."

THE SOCIETY OF ARCHITECTS

The meeting place of the Society of A tects was changed on Tuesday last one night only" from St. James's Hall, P dilly, to the Suffolk-street Art Galleries Wyke Bayliss, F.S.A., the President o Royal Society of British Artists, who promised to lecture before the Society of A tects on that evening, having invited members to view the winter exhibition now on the walls of the galleries. The new depa was much appreciated, and a large numb architects and their friends, including ladies, availed themselves of Mr. Wyke Ba courteous invitation to spend an hour befo lecture commenced in examining the pic The exhibition is a strong one, especially in scapes and sea pieces, and was reviewed issue of 30th October last. The meetin held in the large central room, and immed behind the lecturer's reading-stand hung Bayliss' large interior of Westminster A in which full justice is done to the majestic h of the north aisle of nave, as seen from beyon crossing. Mr. H. Roumieu Gough, F.R.I. occupied the chair. The preliminary bu included the passing of a vote of condolen the widow and family of the late Mr. Alex Stuart, of Exeter, Member, whose recent at the age of five-and-thirty prematurely a career of much promise; the announcem three nominations for membership, and the tion of the following four members:— Chadwick, of Petersfield, Hants; John Alc Davenport, of Heath Bank, Nantwich; W Leck, of Johannesburg, S.A.R. (whose c was selected in competition several years for the Society's certificate of members and George William Nicolay, also of Joha burg, S.A.R.

Mr. Wyke Bayliss then delivered an elo and impassioned address which he had ent

THE LEGEND OF BEAUTY: A PLEA FOR ART ESSENTIAL ELEMENT OF THE COMPLETE L

He explained that he proposed that even do two things—to tell a story and to del message. The message he would unfold proceeded, but the story he would tell at It was one of the very oldest known human race, and was to be found elements in the myths and traditions of races, although somewhat varied in the te The story was that of one who, although the a king, and dwelling in a palace of more regal splendour, descended from that high and became for a time debased into the sem of an ugly beast. Thus he remained, the ugly thing in the palace, until a Beauty st down to him, pitied his unfortunate cond kissed him as he slept, notwithstanding his ness, and so raised him by her love to his or position and rank. This was the legend u lying the stories of Endymion and Dia Cupid and Psyche, of Cymon and Iphige Beauty and the Beast—it was, in fac poetical rendering of the tale of the influe art on our lives. Now the word "beast" w ugly one, and he did not intend to fling any person's head—he certainly should obj its being applied to himself—and yet was true that it might justly have been appl every one of those present, as it still appl all who had not seen the vision of beauty! it not the case that, just as the King's son have remained a beast to the end of the st he had not been awakened by Beauty, should have remained savages had not the presence of Art stooped over us, and reveale self to us as the King's messenger. Ther he trusted, no mistake as to the meaning story, although he had availed himself of a of speech. Art was not a mere plaything was a living force—a force that neith individual nor the nation could afford to gard, for it was an essential element complete life. He had by no means gotten the other messengers that to men the will of the King—those of and Truth, e.g.; but he specially desir speak that evening of one messenger- These taught us that men were surround every side by messengers of evil: that k ledge was not received by inheritance, bu it came to us by messages which must be dilig sought after. There were yet other messe —there was, for example, Science, which t that the beauty which we saw around us w

developments of a single germ; there was ogy, which told us that the world was but vely wreck of a once still lovelier paradise. h of these messengers was true it was not urpose to examine that evening—perhaps ere true. But the messenger Art said that ad only to lift their eyes to see that there et much of beauty in the world around, urther, that it was oppressed, wasted, and yed by evil. When we looked at the varied rds of the beautiful among different nations, re led to ask whether it was possible to n the beautiful. Our ancestors in this ry dyed their teeth black and their skins r in the belief that it improved their rance, and at the present day an African was judged, like an ox, by her weight. ct, we knew not what was good or ful; but it was the province of Art cover this to us. The revelation of the ful was the true aim of art, just as vangelist set before us the divine pattern of ess. As the philosopher searched patiently th, so the artist sought the beautiful, and voured to translate it in the medium of his . But he would next look into the on: What was this thing which we called y? There could be no doubt that our first r, Eve, must have been very lovely, but in was in colour a deep copper—not the hich corresponded to our idea of the beauti- We most admired women who, in the words old song, had "Hands lily-white, carna- ips, and cheeks of rosy hue." Was there asure of what was beautiful but that of —was there no standard? He believed was. Let them adopt the customary plan in doubt as to the meaning of a word, and n the first place to the dictionary for light what was beauty. They would there find y defined as that which pleased the eye, or, etically expressed, that which gave pleasure mind. Let them put it to the test, and ain if, in fact, that which pleased the eye gave most pleasure to the mind. One er evening a friend took him into her ry to show him what Cornelia rightly re- d as her jewels—her children. There were of them, one in particular being a fair-haired yed little girl. The mother, in her pride, d down the coverlet, and there, nestling in ir arms of the child, and hugged close to reast was a hideous black doll, battered of and scantily clothed in soiled and tattered nts—one that would have seemed as a ful apparition if suddenly shown a person ned from sleep. Yet the little girl had er doll, as like to a child as this one locked n her arms was to a beast. That was well ed and fair, and was taken out for walks, iis she brought to bed with her. She liked auty, but she loved the beast. The beauty ood enough for company, but for comfort, nsolation, for loving tender affection com- a child to her battered black friend. The ndoubtedly gave pleasure to her mind—was erefore, beautiful in her eyes? Should we ss the problem by saying that, after all, it nly a child, who did not consider the ques- of beauty? Then let them take another and see if this apotheosis of ugliness was iar to childhood. Let his hearers cross the nel and enter any of the great cathedral hes of the Continent—say Chartres, to take iliar example—and there, side by side with exquisitely-carved, richly-apparelled, and lled statue of the Mother of Christ, was a image, *Une vierge noire:* and as you there you would see the pilgrims from all pressing forward towards the shrine of this doll. It would receive an affection and ct that were never paid to the most beautiful nna by Raphael. It appeared, then, that ision of the beautiful was not seen by the of childhood, nor was it perceived by the r gaze of after years. They must look here for those who could behold its dour. Men and nations had to be led y and patiently to appreciate it. How years did it take to inform the people of nd that the willow pattern was not quite all was to be desired in china earthenware, and many centuries would yet be required e the Chinese people would realise that ips, after all, God knew best the proper size hape for ladies' feet? It was not the first he second vision of beauty which trans- ed the beast into the king's son. If they led the fairy tale, they would recollect that the beast asked the child: "Tell me, don't you think me very ugly?" And Beauty, who could not do otherwise than speak the truth, replied: "Yes, poor Beast; but you are so very good and kind." And then, to that rejoinder, came a terrifying question: "Beauty, will you marry me?" But Beauty, though greatly frightened, answered, in a very firm voice: "No, dear Beast." And yet we all knew that she did marry him; but that was the sequel to the story, which he must not yet consider. We closed the book of fairy lore, and we looked back into the far historic past. We saw people in the dim darkness with outstretched arms, groping as if seeking to touch the hem of His garment who came as the King's son, but satisfying their desire by making rude images of the unseen gods. Two rude pillars of stone would very well represent Castor and Pollux, and a slab across united both. But were these the first objects worshipped? No. Wherever we were able to trace the earliest forms of worship, we found the tendency was to pay devotions to natural objects, such as the sun, moon, and stars. Then came the manufacture of rude gods, then hero worship, the deities being invested with human passions and characters. This was the history of the pantheon of all religions. Two blocks of stone were all very well at first, and Homer could worship them; but when he came to sing of Helen he found he must give her all the charms of womanhood, and these beauties were shown in painting and in sculpture. We had a long procession of poets from Homer down to Virgil, who endeavoured to fashion for themselves a standard of beauty, or to express their sense of the loveliness of the natural world. The worship and ritual of Classic Rome were, the lecturer contended, intellectual in a high degree, and the geometry of Euclid of Alexandria was that still taught in all our public schools. The effect of all these, and of the development of sculpture and painting, was to raise art and set it on a throne of greatness the like of which had never since been seen. At no other period did men so clearly perceive that Art was the King's son. This was the first vision of Beauty by the Beast. To return to the fairy story, they would remember that Beauty had, we were told, the tenderest heart in the world, and that her fear of the beast grew less, until he alarmed her more than ever by asking, "Will you marry me?" And still, frightened as she was, she firmly replied, "No, dear Beast; but I shall always be your friend, and let that content you." The poor beast could make no answer, but only sigh. And well he might, for her vision was fast becoming more dear to him. And so, turning from the fairy story to the pages of history, we saw how Virgil sang of the beauties of nature, and then how the darkness grew deeper, the Laocöon sculptures being among the latest evidences that men understood something of beauty before they were again groping in the night. Then came a thousand years of darkness to the painter and sculptor, a thousand years whose story had little to do with art. But on the tenth night after the last conversation with the beast, we were told in the story, Beauty dreamed that she was in the garden of the palace, and she fancied that the beast lay there dying. The legend was so extremely true, that it was difficult to disentangle the facts of history from the myth. After the ten nights of dark and sullen centuries had passed away since the decay of art, the love of the beautiful was, in reality, very nearly dead. Then came the revival in the years of the 13th century, when there arose Cimabue, Giotto, Gaddi, and Orcagna, and a few others, who began to essay painting. When we saw Italian frescoes more coarse, perhaps, than beautiful, let them remind us of these men who lived nearly as long before Raphael, as we lived after his day. Had not Cimabue and Giotto, and the rest of those 13th-century pioneers, laboured to display their art, the wonderful paintings of Raphael and Michael Angelo would never have been executed. And these later men were not masters of one art only, but were at once painters, architects, and sculptors. The development of the old fairy story was the foreshadowing of this revival of the arts. We saw, as we were told in the legend, how, as Beauty went forward, the night passed away as she reached the gates of the palace garden. The doors rolled back at her approach, she passed down the long avenue, and the palace of the beast had become the temple of the great king. For the second time, they had that evening seen what was the King's message to mankind, as interpreted by successive races. The artists of the Classic Greek period and of the Mediæval ages differed from each other as widely as the poles in the treatment of human life. The Classic artist took the human form as the exponent of all he had to express, and showed it in its highest beauty and perfection; but of the emotions within and life beyond that body he told us nothing. Sorrow: why should it, the Greek artist asked, find expression in human art? Pain and suffering were equally repulsive to him, and thus suffering, pain, and sorrow were alike expelled from the range of his art; but at what a cost! There could be no passion without sorrow, no deep sympathy without suffering, no test of human endurance without pain, so that where these three—pain, sorrow, and suffering—were excluded, art was, at the same time, deprived of the exposition of the noblest emotions of which human nature was capable. But the Greek artists strove to represent their power over form as pictured on Mount Olympus, where the gods lived and where the air was always clear, as the storm clouds burst far below. But on the other hand, the face of the Mediæval artist was set towards another Mount, where he saw the suffering and tried King's messenger coming down into the midst of human woe. It was as though the Greek artist had seen the glory of the messenger, but listened not to his message, whereas the Mediæval artist, while pondering over the message, failed to perceive the divine splendour of the messenger. Mr. Bayliss said he had not forgotten that he was addressing the members of the Society of Architects—indeed, it was for that very reason that he had cast his story into the form it had taken. He wished to speak as an artist to artists, and to come to first principles. It was not the business of those he was addressing to lay paint on canvas, nor was it his business to direct the erection of buildings; but it was the common business of them all to understand what they meant by their art. It was Art which was the main point of union between them as architects and painters, and it was that only which justified him in speaking to them that evening. He regarded art as all-embracing, as including not only painting, sculpture, and architecture, but also the finest dramatic literature of the ancients, the myths of the sun-gods, and the romantic legends of the Renaissance. He sought to direct attention to the grounds on which he based his hope that there was a great future for art if only it were true to its purpose, not by the revival or institution of past achievements, but by becoming the expression and incarnation of an advancing race. The lecturer recited the graphic description of the worship of Adonis from a fragment of Theocritus, and then narrated the treacherous murder of Balder the Beautiful by the mistletoe thrown by the blind Hedda, and showed that both these myths, from widely separated countries, and belonging to different eras, referred to the death of the sun at the approach of winter. Having referred to the development of Gothic architecture as the first phase of the revival of art after the Dark Ages, the lecturer urged that the hope of modern art lay in a return to a study of nature, and closed his address by remarking that if Art was the King's messenger, she must, and would, show the mastery of Evil by the ultimate triumph of right. The old fairy legend, as they would remember, ended with Beauty's declaration, "No, dear Beast, you shall not die, but live; I thought my feeling for you was only friendship, but now I find it was love." That was the message she delivered, and then Beauty covered her eyes and wept. When she again looked up the Beast was gone; yes, he had become revealed as the King's son!

A hearty vote of thanks was accorded by acclamation to the lecturer on the motion of Professor Henry Adams, seconded by the Rev. Philip S. O'Brien, D.D., and the members and friends dispersed to examine the water colours and oils on the walls of the galleries.

BACK-TO-BACK HOUSES AT LEEDS.

WE have before referred to the number of towns—happily fewer than formerly—in which back-to-back houses are allowed to be erected. A very instructive article on the question of "Back-to-Back v. Through Houses" appears in the *Leeds Mercury*. The reply to the question addressed to responsible officials of a number of

important towns as to whether back-to-back houses are allowed to be built is in a large number of cases in the negative. The exceptions are few, though in these towns the examples are chiefly old, except at Plymouth, Portsmouth, and a few other boroughs where this mode of building is permitted. Bradford, Halifax, Huddersfield, and Leeds permit this pernicious and insanitary mode of building. In the first of these towns Bradford, back-to-back houses are built in blocks of four, with a common yard at the rear of 720sq.ft., and this yard is approached by a covered passage 6ft. 6in. wide. Thus each house has ventilation from the side as well as the front. The building committee has a discretionary power in the matter, though seldom taken advantage of. Again, in Huddersfield, the Special Commissioner says, "all the back-to-back houses now built have a passage leading from the street into the yard of not less than 3ft. 6in. wide." The same state of things is allowed in Halifax. The writer goes on to say that out of 28 large towns 20 absolutely prohibit this system of building; in another the question has never arisen, in two others the plan has been adopted in a few cases.

Referring to Leeds, "the building laws permit the erection of back-to-back houses in blocks of eight with an intervening space of 15ft., in which the conveniences are erected, or in a continuous row, provided that each house has its own water-closet." There is thus no side ventilation in Leeds, and the circulation of air is less than in the blocks on this plan in Bradford and Huddersfield. The writer, in fact, points out the exceedingly insanitary condition of Leeds in this respect. Of course, much of this class of building is to be attributed to the rents of houses of the back-to-back and "through" kind. Several answers have been given by this correspondent to questions on this point. These refer to new "through" houses. The rents given, including rates, vary from 3s. per week in Hull and Nottingham to 5s. or more in Bradford, Huddersfield, and other places—for example, at Brighton, the rent is 6s. to 7s., including rates; at Birkenhead it is 4s. 6d. with four rooms; at Birmingham 4s., including kitchen, scullery, sitting room, and two or three bed rooms; at Blackburn, 3s. 6d., four rooms, with yard, &c.; at Bolton, 4s., kitchen and scullery, and two bedrooms; at Bradford, 5s. 9d., including living room and scullery, two bedrooms, and attic; at Derby, 4s., kitchen, scullery, two bedrooms; Halifax, 4s.; Manchester, 4s. 6d. to 6s.; at Liverpool, 5s. to 5s. 6d., with about four rooms. Indeed, Mr. Gordon Smith, architect to the Local Government Board, and Dr. Barry, one of the inspectors of that body, have reported that, in carefully-prepared plans and estimates of a back-to-back house and a through house, affording practically the same accommodation, and complying in each case with the local by-laws, both at Halifax, the estimated cost of construction was £156 12s. 8d. for the through house, and £152 1s. 8d. for the back-to-back house, a difference in favour of the latter of £4 11s. only. The question is asked, What becomes of the contention that the working classes of Leeds must be housed in back-to-back dwellings? With one or two exceptions, the "through" houses are as cheap as those of the back-to-back system. No doubt they are, but the latter principle is a little more saving in area. But so trifling is this difference, that the municipal authorities, ought to place health first, and set an example worthy of so important a town by abolishing a system of building agreed on all hands to be injurious.

ROBERT BOYLE AND SON, LIMITED.

THE annual general meeting of this company was held at the City Terminus Hotel on the 25th ult., when a dividend of 12½ per cent. was declared on the ordinary and deferred shares, one-sixth of the profits being placed to the reserve fund, and a balance of £266 11s. 5d. carried forward to next year.

Mr. Robert Boyle, chairman and managing director, in moving the adoption of the report and accounts, which were unanimously adopted, said: No efforts have been spared to bring the business of the company into its present prosperous condition, the year ended having been the most profitable since the formation of the company, notwithstanding the great strike in the building trade, which has now existed for over six months, and the almost unprecedentedly severe weather experienced during the whole year, which naturally might have been expected to affect the demand for ventilating appliances, as in very cold and inclement weather the necessity for ventilation is neither so evident nor desirable as in warm weather. You are all doubtless aware of the discreditable practices of a certain ventilating company, which, by underhand means, surreptitiously acquired a knowledge of the details of plans and estimates furnished by us for the ventilation of certain buildings, and the dishonourable way in which this information was utilised by duplicating and sending in the same uninvited to our clients, but substituting a ventilator made to imitate the external appearance of the air-pump ventilator, and tendering at a lower price. We have received a large number of letters from architects and others expressing their disgust at the contemptible conduct of the ventilating company in question, and many of you may have read the scathing criticisms of the Press, unanimously referring to the matter as "the most unscrupulous and discreditable affair ever heard of in connection with business." We do not object to honest competition—there is room for it; but these are the sort of tactics we have had to contend with in more quarters than one for a considerable time back. But, from the steady increase in our business each succeeding year, architects are evidently not to be so easily imposed upon by these enterprising individuals, and are quite alive to the fact that certain things, though speciously offered at a low figure, may be dear at any price. Such unprincipled practices, when introduced into business, and which, from the low moral standard of the authors, they generally deem to be the climax of cleverness, invariably end, sooner or later, in their ignominious collapse, and of those who have aided and abetted them. When the proper time arrives for the full exposure of these disreputable proceedings, revelations will be made with respect to the connection of certain persons with the ventilating company implicated, which I feel sure will come as a surprise to many here, for I regret to say that we rank amongst our own shareholders those who, for private ends of their own, which, I think I need hardly say, are chiefly of a pecuniary character, have made, and are still making, determined, though futile, efforts to injure the business of the company. As you are aware, I have from time to time effected improvements in the air-pump ventilator, adding considerably to its value as a foul-air exhaust. I am now completing my final tests with the latest improvements, which, I believe, will bring the air-pump ventilator to as near perfection as it is possible for an automatic ventilator to attain. The present form of air-pump ventilator is made of an ornamental character, with the best rolled steel plates, galvanised, and painted with enamel paint; and though in every way superior to the forms previously made, is now sold at about 50 per cent. less in price. Though this, of course, has reduced our profit on each ventilator to a minimum, the remarkable increase in the sales which has resulted has, I think, fully justified the reduction made. I am glad to say that the foreign agencies continue to be satisfactory, our system of ventilation being successfully applied to an ever-increasing number of leading public buildings in Germany, France, Russia, Belgium, Italy, Spain, Holland, Denmark, Norway, and Sweden, also America and Australia. My visit last year to Egypt, India, China, and Japan has also been productive of good results; and the hopeful anticipations I expressed at our last meeting regarding my proposed visit to South Africa have been, I am pleased to say, more than realised, I having, during that visit, established agencies in Cape Colony, Natal, the Transvaal, and the Orange Free State, stocks of ventilators amounting to the value in South Africa of over £4,000 having been bought and paid for; whilst our system of ventilation has been applied to, and adopted for—amongst a large number of other public buildings in South Africa—the Houses of Parliament, the Castle, and Town-hall, Cape Town; the High Court House, new Government buildings, and new Stock Exchange, Kimberley; the new Stock Exchange, Theatre, and Pavilion, Johannesburg; the New Club, Court House, and Hospital, Pretoria; the Houses of Parliament, new Town-hall, Municipal Buildings, and new Railway Station, Pietermaritzburg; the Town-hall, Municipal Buildings, and new Railway Station, Durban; the Cathedral, Grahamstown; new Theatre and Opera-house, the drainage system, Port Elizabeth, &c.

The directors and auditors having been elected, they and a number of shareholders referred in highly complimentary terms to able manner in which Mr. Boyle had managed the affairs of the company, and the proceedings terminated with unanimous votes of thanks to the chairman and directors.

PRICES.—XXV.*

(All Prices Include Profit).

JOINER (*continued*).

MOULDINGS, including profit, but not including, and not including cartage in small quantities; in large quantities a reduction may be made.

		£
Staff beads:—		
⅜in.	per foot run	0
½	ditto	0
⅝	ditto	0
1	ditto	0
1¼	ditto	0
1½	ditto	0
Cock beads:—		
⅜in.	ditto	0
½	ditto	0
¾	ditto	0
1	ditto	0
1¼	ditto	0
1½	ditto	0
Quirked beads:—		
⅜in.	ditto	0
½	ditto	0
¾	ditto	0
⅞	ditto	0
1	ditto	0
Mouldings for panels:—		
½ by ¾	ditto	0
⅝ by 1	ditto	0
¾ by 1¼	ditto	0
⅞ by 2	ditto	0
Architraves:—		
⅝ by 1⅝	ditto	0
⅝ by 2½	ditto	0
⅞ by 2½	ditto	0
⅞ by 2¾	ditto	0
1⅛ by 3¼	ditto	0
1⅛ by 3½	ditto	0
1⅛ by 3⅝	ditto	0
1¼ by 4	ditto	0
1⅛ by 5	ditto	0
1⅞ by 5	ditto	0
1⅞ by 5¾	ditto	0
2 by 6¼	ditto	0
1⅞ by 6¾	ditto	0
2 by 7¼	ditto	0
2⅜ by 7¼	ditto	0
2½ by 8½	ditto	0
Dado and picture mouldings of reed and other exceptional patterns:—		
⅜ by 1½	ditto	0
⅝ by 2½	ditto	0
⅝ by 2	ditto	0
⅝ by 3	ditto	0
⅝ by 3	ditto	0
⅞ by 2½	ditto	0
1⅛ by 2½	ditto	0
1¼ by 3	ditto	0
1¼ by 3	ditto	0
1¾ by 2¾	ditto	0
Cornice mouldings:—		
1½ by 1⅜ solid in angle	ditto	0
The following require blocking:—		
⅜ by 3½	ditto	0
1 by 4½	ditto	0
1 by 5½	ditto	0
⅞ by 6½	ditto	0
⅞ by 8½	ditto	0
1¼ by 5½	ditto	0
1¼ by 5½	ditto	0
2 by 7	ditto	0
Mahogany and other hard wood mouldings:—		
⅜ by ¾	ditto	0
⅜ by ¼	ditto	0
⅝ by 1	ditto	0
⅝ by 1¼	ditto	0
⅝ by 1⅜	ditto	0
⅝ by 2	ditto	0
¾ by 2	ditto	0
¾ by 1¼	ditto	0
⅞ by 1½	ditto	0
1 by 2	ditto	0
1¼ by 1½	ditto	0
⅜ by 4	ditto	0
⅞ by 5½	ditto	0
1 by 6	ditto	0
1⅜ by 6	ditto	0
Mouldings worked by machinery on joiner's work, &c., finished by hand:—		
¼, ½, ¾ beads worked in quantities over 500ft.	per foot run	0
Ditto under 500ft.	ditto	0
1, 1¼ beads ditto ditto over 500ft.	ditto	0
Ditto under 500ft.	ditto	0
Ditto under 100ft.	ditto	0
Mouldings ½, ¾ on face, in quantities over 500ft.	ditto	0
Ditto under ditto	ditto	0
Mouldings 1 and 1¼ in quantities over 500ft.	ditto	0
Ditto under ditto	ditto	0
Ditto under 100ft.	ditto	0

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			£	s.	d.
ldings 1½in. wide over 500ft.					
...	per foot run		0	0	1
ditto under ditto	ditto		0	0	1½
ditto ditto 100ft.	ditto		0	0	1⅔
2in. wide over 500ft.	ditto		0	0	1¾
ditto under ditto	ditto		0	0	1⅞
ditto ditto 100ft.	ditto		0	0	1⅞
2½in. wide over 500ft.	ditto		0	0	1¾
ditto under ditto	ditto		0	0	1⅞
ditto ditto 100ft.	ditto		0	0	1⅞
3in. wide over 500ft.	ditto		0	0	1⅞
ditto under ditto	ditto		0	0	1⅞
ditto ditto 100ft.	ditto		0	0	2
ULDINGS worked by hand (exceptional					
erns to be allowed for)—					
ditto ...	per foot run		0	0	1
ditto ...	ditto		0	0	1
ditto ...	ditto		0	0	1
ditto ...	ditto		0	0	1¼
ditto ...	ditto		0	0	1¼
ditto ...	ditto		0	0	1⅜
ditto ...	ditto		0	0	1⅜
ditto ...	ditto		0	0	2
nall quantities to be paid for at an increased rate.)					

here the mouldings are special the making
ons, &c., should be allowed for.
o stops are included.
rcular mouldings may be priced at twice
ght for flat sweep, and thrice straight for
k sweep, five times straight for twisted or
hed. These prices may be much reduced
re machinery is kept.

				£	s.	d.
TERS, STOPS, &c.—						
s to beads	¼ to ¾		each	0	0	1
ditto	1 to 1½		ditto	0	0	1½
ditto	1½ to 2		ditto	0	0	1½
to ditto (staff)	¼ to ⅜	square	ditto	0	0	1
ditto	1 to 1¼		ditto	0	0	1¼
ditto	1¼ to 2		ditto	0	0	1⅜
ditto	¼ to ¾	moulded	ditto	0	0	1⅜
ditto	1 to 1½		ditto	0	0	2
ditto	1½ to 2		ditto	0	0	3
s to moulding	⅛ to ¾		ditto	0	0	1
ditto	1 to 1½		ditto	0	0	1¼
ditto	1½ to 2		ditto	0	0	1⅜
ditto	2⅛ to 3		ditto	0	0	2
to ditto	⅛ to ¾	plain	ditto	0	0	1⅜
ditto	ditto	moulded	ditto	0	0	2
ditto	1 to 1½	plain	ditto	0	0	1⅝
ditto	ditto	moulded	ditto	0	0	2½
ditto	1½ to 2	plain	ditto	0	0	2
ditto	ditto	moulded	ditto	0	0	3
ditto	2⅛ to 3	plain	ditto	0	0	3
ditto	ditto	moulded	ditto	0	0	4
ese prices do not include exceptional						
dings to stops, such as long and undercut						
)						
CHITRAVE BLOCKS, machine-worked—						
moulded to 4in. architraves, including						
ng ...			each	0	0	7
ditto	5in.	ditto	ditto	0	0	8
ditto	6in.	ditto	ditto	0	0	9
ditto	8in.	ditto	ditto	0	0	10
ditto	9in.	ditto	ditto	0	1	0
ded ditto	4in.	ditto	ditto	0	0	9
ditto	5in.	ditto	ditto	0	0	10
ditto	6in.	ditto	ditto	0	0	11
ditto	8in.	ditto	ditto	0	1	0
ditto	9in.	ditto	ditto	0	1	2
TO, hand-worked—						
moulded to	4in.	ditto	ditto	0	0	9
ditto	5in.	ditto	ditto	0	0	10
ditto	6in.	ditto	ditto	0	1	0
ditto	8in.	ditto	ditto	0	1	2
ditto	9in.	ditto	ditto	0	1	4
ded ditto	4in.	ditto	ditto	0	0	10
ditto	5in.	ditto	ditto	0	0	11
ditto	6in.	ditto	ditto	0	1	0
ditto	8in.	ditto	ditto	0	1	3
ditto	9in.	ditto	ditto	0	1	6
TRDOORS—						
moulded and bracketed, 10in. high,						
d complete ...			ditto	0	17	6
12in. high, and sunk ...			ditto	1	5	6
panelled and enriched, 14in. high ...			ditto	1	7	6
with flutings and carved panel ...			ditto	2	0	0
led pediments for the above over-						
rs, 10in. high ...			ditto	0	18	0
with shaped centres...			ditto	1	12	0
CHINE-PRESSED Carved Mouldings, un-						
in fair quantities—						
pattern, 1¼in. wide ...	per foot run			0	0	3½
wide, egg and tongue ...	ditto			0	0	9
in. ditto ...	ditto			0	0	8
thin dado enrichment ...	ditto			0	0	3
ditto floral pattern ...	ditto			0	0	4
Doric, egg and tongue, en-						
ed with foliation ...	ditto			0	0	7½
Moresque pattern ...	ditto			0	0	6
ditto ...	ditto			0	0	7½
Etruscan pattern for dado						
chment, &c. ...	ditto			0	0	6
lizabethan pattern for ditto	ditto			0	0	6
ouis Quatorze pattern for						
o ...	ditto			0	0	6
ricker pattern, slight relief	ditto			0	0	5
oral pattern ditto ...	ditto			0	0	8
udor pattern ...	ditto			0	0	5
talian pattern ...	ditto			0	0	8
ine-leaf and grapes pat-						
, slight relief ...	ditto			0	0	8
loresque pattern ...	ditto			0	0	8
ATENT ADORNO-WOOD PANELS, ETC., UNFIXED.						
6½ (sight size) panel—"Fire" ...			each	0	6	0
6½ ditto ditto "Water" ...			ditto	0	6	0
7 ditto ditto Faust and Margaret			ditto	0	6	0
8½ ditto ditto	ditto		ditto	0	6	0
8½ ditto ditto	ditto		ditto	0	6	0
7½ ditto ditto	ditto		ditto	0	5	6
8½ ditto ditto	Bacchus		ditto	0	6	0

			£	s.	d.
17½ by 8½ (sight size) panel—Bacchante		each	0	6	0
13⅜ by 9½ ditto ditto	ditto ...	ditto	0	6	9
8⅜ by 11½ ditto ditto	ditto ...	ditto	0	5	6
11½ by 5½ ditto ditto	ditto ...	ditto	0	6	6
15 by 5½ ditto ditto	ditto ...	ditto	0	8	6
15 by 5½ ditto ditto	ditto ...	ditto	0	11	6
31⅜ by 5½ ditto ditto	ditto ...	ditto	0	13	6
11½ by 2½ ditto ditto	ditto ...	ditto	0	4	0
15 by 2½ ditto ditto	ditto ...	ditto	0	5	0
19½ by 2½ ditto ditto	ditto ...	ditto	0	6	6
14½ by 14½ ditto ditto	ditto ..	ditto	0	12	6
19½ by 15½ picture panel	ditto ...	ditto	1	0	0
1in. Rosette ...		ditto	0	0	1½
1½ ditto ...		ditto	0	0	2
2½ ditto ...		ditto	0	0	5
3 ditto ...		ditto	0	0	8
4½ ditto ...		ditto	0	0	9½
Heads 4⅞ by 4½ Beethoven ...		ditto	0	2	6
Ditto 6⅜ by 5⅜ ditto ...		ditto	0	2	9
Ditto 5 by 4¼ Mozart ...		ditto	0	2	6
Ditto 6⅞ by 5⅜ ditto ...		ditto	0	2	9
Summer 9 by 5 ...		ditto	0	3	9
Autumn ditto ...		ditto	0	3	9
Winter ditto ...		ditto	0	3	9
Spring ditto ...		ditto	0	3	9
Table top 18⅜ ...		ditto	0	15	0
Ditto or plaque 11⅞ ...		ditto	0	9	6
Ditto 13⅛ ...		ditto	0	9	6
Guitar player ...		ditto	0	4	0
Pediment 4 by 12⅝ Dolphin ...		ditto	0	3	0
Ditto 3 by 10 ditto ...		ditto	0	2	0
3in.	Lion Head ...	ditto	0	0	10
3¾	ditto ...	ditto	0	1	0
4⅜	ditto ...	ditto	0	1	6
7 by 5½	Mater Dolorosa ...	ditto	0	5	0
6½ by 5⅜	Christ ...	ditto	0	5	0
Head 17¼	North ...	ditto	0	17	6
Ditto	South ...	ditto	0	17	6
Ditto	Christ ...	ditto	0	17	6

W.C. AND BATH FITTINGS.

			£	s.	d.
DEAL—					
1in. seat and riser, including dovetailed bearers ...	per foot super.		0	0	8
Ditto flap and frame, framed and clamped and hung ...	ditto		0	0	8
1¼in. seat and riser, &c. ...	ditto		0	0	9
Ditto flap and frame, &c ...	ditto		0	0	9
1¼ bath top, framed and shaped, measured solid ...	ditto		0	0	8
1⅛ ditto ditto ...	ditto		0	0	9
1½ square framed inclosure ...	ditto		0	0	8
Ditto moulded ditto ...	ditto		0	0	9
Extra to door in ditto ...	each		0	2	6
1½ square-framed inclosure ...	ditto		0	0	9
Ditto moulded ditto ...	ditto		0	0	10
½ by 4 skirting ...	ditto		0	0	2
Angles ...	ditto		0	0	2
Moulded corners ...	ditto		0	0	2
¾ by 6 skirting ...	ditto		0	0	2½
Angles ...	ditto		0	0	2
Rounded corners ...	ditto		0	0	2
Thumb moulding ...	ditto		0	0	3
Rounded edge ...	ditto		0	0	1
Moulded edge to 1½ bath top ...	ditto		0	0	1½
Ditto to 1½ ditto ...	ditto		0	0	2
Extra to door ...	each		0	2	6
Hole cut for handle and beaded ...	ditto		0	1	6
Ditto for seat and moulded ...	ditto		0	1	3
Extra for seat and riser being made movable ...	ditto		0	1	6
Paper box ...	ditto		0	2	6
Candle-shelf and bracket or bearers ...	ditto		0	2	0
Attend plumber to w.c. ...	ditto		0	2	0
Ditto ditto to bath ...	ditto		0	2	0
Cradling to bath ...	ditto		0	5	0
PITCH-PINE—					
1in seat and riser, including dovetailed bearers ...	per foot super.		0	0	10
1in. flap and frame, framed and clamped and hung ...	ditto		0	0	10
1¼in. seat and riser, &c. ...	ditto		0	0	11
Ditto flap and frame, &c. ...	ditto		0	0	11
Ditto bath top, framed and shaped ...	ditto		0	0	10
1½ ditto ditto ...	ditto		0	0	11
1½ square framed inclosure ...	ditto		0	0	11
Ditto moulded one side ditto ...	ditto		0	1	0
Extra to door in ditto ...	ditto		0	3	0
1⅔ square-framed inclosure ...	ditto		0	0	11
Ditto moulded one side ditto ...	ditto		0	1	0
Extra to door in ditto ...	ditto		0	3	0
2in. square-framed inclosure ...	ditto		0	1	0
Ditto moulded one side ditto ...	ditto		0	1	1
Extra to door in ditto ...	ditto		0	3	0
½ by 4 skirting ...	ditto		0	0	2½
Angles each ...	ditto		0	0	2½
Rounded corners ...	ditto		0	0	2⅔
¾ by 6 skirting ...	ditto		0	0	3
Angles ...	ditto		0	0	2⅔
Rounded corners ...	ditto		0	0	2⅔
¾ by 9 skirting ...	ditto		0	0	4
Angles ...	ditto		0	0	2⅔
Rounded corners ...	ditto		0	0	2⅔
Thumb moulding, tongued on ...	ditto		0	0	4
Rounded edge ...			0	0	1
1¼in. moulded edge ...			0	0	2
1⅔in. ditto ...			0	0	2⅔
Rounded corners to ditto ...			0	0	4
Paper box ...			0	3	0
Candleshelf and bearers ...			0	2	6
Hole cut and beaded for handle ...			0	1	9
Ditto ditto moulded for seat ...			0	1	6
MAHOGANY, not polished—					
1in. seat and riser, including dovetailed bearers ...	per foot super.		0	1	9
1in. framed flap and frame hung, including clamped ends ...	ditto		0	2	0
1¼in. seat and riser, &c. ...	ditto		0	2	0
Ditto flap and frame, &c. ...	ditto		0	2	3
Ditto bath top framed and shaped ...	ditto		0	2	0
1⅔in. ditto ...	ditto		0	2	6
1in. square-framed inclosure ...	ditto		0	2	0
Ditto bead butt ditto ...	ditto		0	2	2
Ditto ditto flush ditto ...	ditto		0	2	3

			£	s.	d.
1in. moulded one side ...	per foot super.		0	2	2
1½in. square framed ...	ditto		0	2	3
Ditto bead butt ...	ditto		0	2	5
Ditto ditto flush ...	ditto		0	2	6
Ditto moulded one side ...	ditto		0	2	5
1⅔in. square framed ...	ditto		0	2	6
Ditto bead butt ...	ditto		0	2	8
Ditto ditto flush ...	ditto		0	2	9
Ditto moulded one side ...	ditto		0	2	8
Extra to door in 1in. ...	ditto		0	3	0
Ditto ditto 1½in. ...	ditto		0	3	6
Ditto ditto 1⅔in. ...	ditto		0	4	0
½in. by 4in. square skirting ...	ditto		0	0	5
Ditto angles ...	ditto		0	0	3
Ditto rounded corners ...	ditto		0	0	3
¾in. by 6in. square skirting ...	ditto		0	0	6
Ditto angles ...	ditto		0	0	3
Ditto rounded corners ...	ditto		0	0	3
½in. by 6in. square skirting moulded ...	ditto		0	0	8
¾in. by 6in. ditto ...	ditto		0	0	10
¾in. by 9in. ditto ...	ditto		0	1	0
Ditto angles ...	ditto		0	0	4
Ditto return moulded ends	ditto		0	0	6
Thumb moulding tongued on ...			0	0	3
Rounded edge ...			0	0	2
Moulded ditto to 1½in. ...			0	0	3
Ditto ditto 1⅔in. ...			0	0	3
Holes cut and beaded for handles ...			0	1	6
Ditto ditto moulded for seat ...			0	1	6
Paper box ...			0	5	0
Candleshelf ...			0	5	0
Extra to making w.c. seats and risers movable			0	2	6
COLUMNS AND PILASTERS in deal—					
1in. glued and blocked pilasters, with returns mitred and supered over the surface (fixed) ...	per foot super.		0	0	10
1¼in. ditto ...	ditto		0	0	10½
1⅓in. ditto ...	ditto		0	0	11
2in. ditto ...	ditto		0	1	0
1in. ditto tapering on edges ...	ditto		0	1	0
1½in. ditto ditto ...	ditto		0	1	1
1⅔in. ditto ditto ...	ditto		0	1	2
2in. ditto ditto ...	ditto		0	1	3
1¼in. glued-up columns, tapering 2in. to 3in., and finishing to fair, circular face, for painting (fixed) ...	ditto		0	2	0
Ditto less than 12in. diameter...	ditto		0	2	6
Ditto ditto 10in. ditto...	ditto		0	3	0
TURNED CAPS AND BASES, glued up in thicknesses and fixed (12in. diameter)—					
3in. thick ...	per foot circumference.		0	2	6
4in. ditto ...	ditto		0	2	9
5in. ditto ...	ditto		0	3	0
6in. ditto ...	ditto		0	3	3
8in. ditto ...	ditto		0	3	9
10in. ditto ...	ditto		0	4	3
12in. ditto ...	ditto		0	5	0
NECK MOULDINGS, &c.—					
1in. thick ...	ditto		0	1	6
1½in. ditto ...	ditto		0	1	9
1⅓in. ditto ...	ditto		0	2	0
2in. ditto ...	ditto		0	2	3
2⅓in. ditto ...	ditto		0	2	6
FLUTINGS to pilasters, hand-worked—					
⅛in. ...	per foot run		0	0	3
⅜in. ...	ditto		0	0	3
½in. ...	ditto		0	0	3
⅝in. ...	ditto		0	0	3½
¾in. ...	ditto		0	0	4
1in. ...	ditto		0	0	4
Stops plain ...	each		0	0	2
Ditto circular ...	ditto		0	0	3
Flutings less than 12in. count as one foot each. Where the flutings are to diminished pilasters or columns, add one-fourth to the above prices.					
Carving of deal caps to 12in. pilasters, Ionic order, and two short returns ...			0	12	6
Ditto Composite ...			0	15	0
Ditto Ionic to 12in. columns ...			2	10	0
Ditto Composite ...			3	0	0

CHIPS.

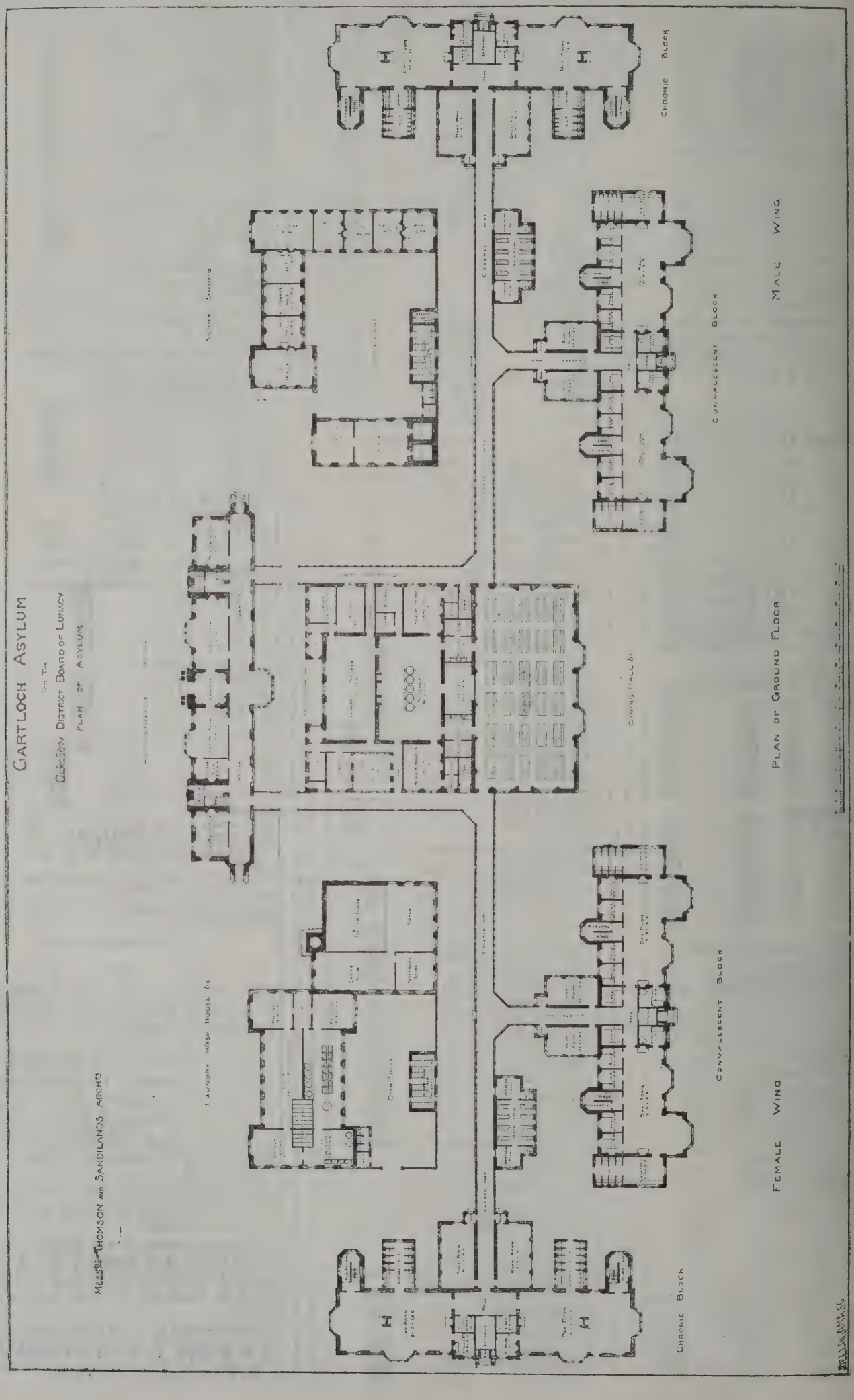
The salary of Mr. Francis J. C. May, C.E., borough surveyor of Brighton, has been increased from £500 to £700 per annum. The vote was unanimous, and the speeches of the members of the town council most complimentary.

A mission hall in Ellis-street, Birmingham, built by the congregation of the church of St. Thomas was opened on Saturday. The building comprises the hall, which will seat between 350 and 400 people, two entrance porches, classroom or vestry, kitchen, store-room for chairs, heating chamber, &c. The cost, including furniture, &c., has been about £1,300. The architect is Mr. F. B. Osborn, and the builders Messrs. Hopkins and Son, of Birmingham.

The Staffordshire County Council has under consideration the choice of a site for the proposed new county lunatic asylum, to be built at a probable cost of about £100,000.

The annual meeting of Ayr Guildry Court was held on Friday, when Captain Girvan, Master of Works, was unanimously elected Dean of Guild. Mr. A. G. Young was chosen clerk, and Mr. R. M'Callum treasurer. Ten new members were elected.

Under the will of the late Mr. James Middlemore, the corporation of Birmingham is bequeathed for the Municipal Art Gallery two oil-paintings—"Le Soir," by Charles Gleyre, and a copy of Guido Reni's widely-known "Aurora."


CARTLOCH ASYLUM
For The
Govan District Board of Lunacy
PLAN OF ASYLUM
Messrs Thomson and Sandilands Archts
PLAN OF GROUND FLOOR
FEMALE WING
MALE WING
CHRONIC BLOCK
CONVALESCENT BLOCK
CHRONIC BLOCK
CONVALESCENT BLOCK
WORK SHOPS
LAUNDRY WASH HOUSE &c
DINING HALL &c
OPEN SHED
BELL ANN. SC

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ILLUSTRATIONS.

FIRST PREMIATED DESIGN FOR THE NEW BATTERSEA TOWN HALL.—THE HAMPSTEAD SYNAGOGUE.—NORTH SIDE OF NAVE, HALBERSTADT CATHEDRAL.—HOUSE NEAR SALISBURY.—SIX COTTAGES AT ELSTREE.—ST. MARGARET'S CHURCH, BLACKWOOD.—GARTLOCK ASYLUM, GLASGOW.

Our Illustrations.

BATTERSEA TOWN HALL.

Mr. E. W. Mountford's selected design for the new Battersea Town Hall, which we illustrate to-day, will be found fully described in our review of the competition, which appears elsewhere.

THE HAMPSTEAD SYNAGOGUE.

The Hampstead Synagogue will be distinguished by several departures from traditional details. In place of the familiar oblong, its form will be octagonal, and this form will insure an equally good view of the ceremonial from all parts of the building. The reading-platform, instead of being in the centre of the building, will adjoin the ark-platform, and will be approached on either side by staircases in the form of a quarter circle. The pulpit will spring from the ark-platform, and the reading-desk will be arranged so that the reader may either face the ark or face the congregation, as the occasion may require. The ark itself will have the character of a miniature temple, surmounted by an enriched dome. The choir will be placed behind the ark, and the voices will enter the synagogue through wrought-iron grilles in the apse. The reading-platform and the ark-platform being raised considerably above the level of the synagogue, removes the necessity of placing the gentlemen's seats in tiers; while the entire centre of the ground floor is covered with cross-benches. The gallery is arranged in tiers, and the tiers are so pitched as to allow of each lady having an uninterrupted view of the service. Spacious gangways are provided both on the ground floor and the galleries. The entrance-hall leads right and left through vestibules to the grand staircases, which are inclosed in separate buildings. In addition to the grand staircases, there are two emergency staircases, so that there are four distinct means of exit from the gallery. The ground-floor has five distinct exits, and the plan has been so arranged that on reaching the foot of the gallery stairs, ladies may at once pass out into the street without meeting the crush in the vestibules. Behind the staircases are the gentlemen's cloak-rooms, and at the gallery level are extensive cloak-rooms for ladies. The entrances from the vestibules and the staircases into the main building are effected through lobbies, each lobby being fitted with two sets of double-swing doors, this arrangement being devised to prevent the draught and noise caused by the opening of single doors. The flaps of all seats are fitted with indiarubber borders, to prevent noise from slamming, and all the seats are upholstered and separated by arms. The lighting of the building is effected by a sunburner of great power, and by gas standards. The heating is effected by a hot-water system, the pipes being hidden in trenches, and the warmth being introduced through gratings. The ventilation is obtained by fresh-air inlets, and by extract cowls. Special extractors are provided to draw the vitiated air from under the gallery, and a powerful cowl surmounts the chimney of the sunlight. The gallery is supported by columns at the angles of the octagon, and these are carried up to the springing of the roof and support the steel ribs which form the dome. The building has been designed on Romanesque lines, the leading characteristics of the façade being the great central tower flanked by the towers containing the staircases. The design depends largely for its effect upon the grouping of these leading features, and in the exterior as well as in the interior the conventional form of the synagogue has been as far as possible avoided. The elevation will be executed in red bricks and red stone of a rich colour, and the interior will be finished a pure white, with dark oak joinery. The architect of the building is Mr. Delissa Joseph, F.R.I.B.A., of 17 and 18, Basinghall-street, E.C. The contract has been awarded to Messrs. John Allen and Sons.

HALBERSTADT CATHEDRAL BUTTRESS FROM NAVE.

Halberstadt is one of the oldest towns in Germany, and was of sufficient importance in the ninth century to give title to an episcopal see. Its prosperity has long since departed; but the great variety of buildings, of all styles, from Romanesque to Renaissance, affords free scope for the exercise of the artist's pencil. The cathedral of St. Stephen, built on the site of an older church destroyed by fire in 1181, is in itself a marked instance of the change and progress of Mediæval architecture. The west towers are Romanesque, while backward towards the choir is to be seen the full development into Decorated Gothic. The portion of nave shown in drawing was sketched as exhibiting a fine example of design in buttresses. H. H. McC.

HOUSE NEAR SALISBURY.

Messrs. Crickmay and Son, of 17, Parliament-street, S.W., are the architects of this house, but no further particulars have reached us.

COTTAGES AT ELSTREE.

These two groups of labourers' cottages were built last year for Mr. H. H. Gibbs, M.P., on the northern slope of Elstree Hill, from the designs of Messrs. Woodd and Ainslie, of 35, New Bond-street, London, W. Each group consists of three cottages, containing three bedrooms, living room, scullery or wash-house, and the usual offices and stores. The materials used are red brick with moulded Costessey brick window-dressings for the lower parts, brindled tiles for the roofs and tile-hung portions of the upper stories, and oak half-timber work for the gables towards the road. Messrs. Shillitoe and Son, of Bury St. Edmund's, were the contractors.

CHANCEL DETAILS, ST. MARGARET'S CHURCH, BLACKWOOD, NEWPORT, MON.

This sheet of working drawings needs but little explanation, as the details explain themselves. The pulpit, screen to the organ transept, and the choir stalls, &c., are all made in oak left untouched from the joiner's hands. The carved bosses were very nicely executed by a Hereford man, and are varied in design, and all cut out of the solid. The roof of the building is stained green and varnished. The walls are finished a salmon-red, with a rich Persian red dado, and the slopes between the rafters and purlins are coloured a warm cream. The dwarf wall at the entrance of the chancel is for the intended rood screen. The altar rail of oak has wrought-iron and copper standards, like the detail shown on the sheet. The vestry door and other woodwork not of oak is stained red and varnished. The walls are of stone from the quarry at the rear of the churchyard, given by Lord Tredegar. The nave of the church was erected some years ago from the designs of the late Mr. Bowes A. Paice, A.R.I.B.A. The builder of the present completion work was Mr. Hy. Welsh, of Hereford. Mr. Maurice B. Adams, F.R.I.B.A., was the architect.

GARTLOCH ASYLUM.

(For description see page 844.)

It has been decided to place a monument in Carlisle Cathedral, as a memorial of the late bishop, Dr. Harvey Goodwin.

RAILWAY RATES FOR TIMBE CARRIAGE.

An important meeting was held at the L Chamber of Commerce on Thursday i week, for the purpose of considering the qu of railway rates as defined by the various which became law last session, and as af by other Bills which will come under the sideration of Parliament in the forthc session. Mr. Wade, of Hull, moved a re tion, which was seconded by Mr. Ald. Lo Bristol, and after considerable discussio several amendments had been submitted following was put by the chairman: "with a view to a fair and equitable settlem the railway rates question as regards the ca of timber, it is desirable—(*a*) To organise a sentative deputation to the Board of Tra support of the general objections of the tr machine weight, so far as regards Bills brought forward next session. (*b*) To pe against the North-Eastern and other rema railway Bills which are to be introduced next session, in so far as the objections timber trade are not met. (*c*) To fram draft a short Bill repealing the objectio conditions passed in the various railway B the last session of Parliament, in order to the following results: (1) That, with rega the foreign timber trade, deals, battens, b and sleepers, being of regular and ascer sizes, easily computed, shall be carried by puted measurement weight only, and in C instead of Class I. (2) That all balk ti both square and round, whether forei English, shall be carried at measurement and in Class C, computed as at present, sa except pitwood timber, and also such ki timber as are by custom of the market, b and sold by weight." Three members against the resolution, and on a show of ha its favour the chairman declared the reso carried by a very large majority.

CHIPS.

The Local Government Board have give assent to the application of the Croydon C Council for permission to expend the s £70,000 in the erection of new municipal ings. The work will be taken in hand immediately.

The addition to the Nurses' Home at the W Infirmary, Glasgow, which has been extende to accommodate the whole nursing staff, was on Friday. The extension consists of three which contain forty-seven additional room the cost, including furnishing, amounts to £10,000.

The Lynn town council have decided to gas buoys for lighting their channel throu Wash. The capital expenditure is estima £4,994, and the cost of maintenance at £7 annum.

Sir Henry W. Peek, Bart., officiated on afternoon at the opening of the new premi the London and South-Western Railway Se Orphanage, Jeffreys-road, Clapham-road.

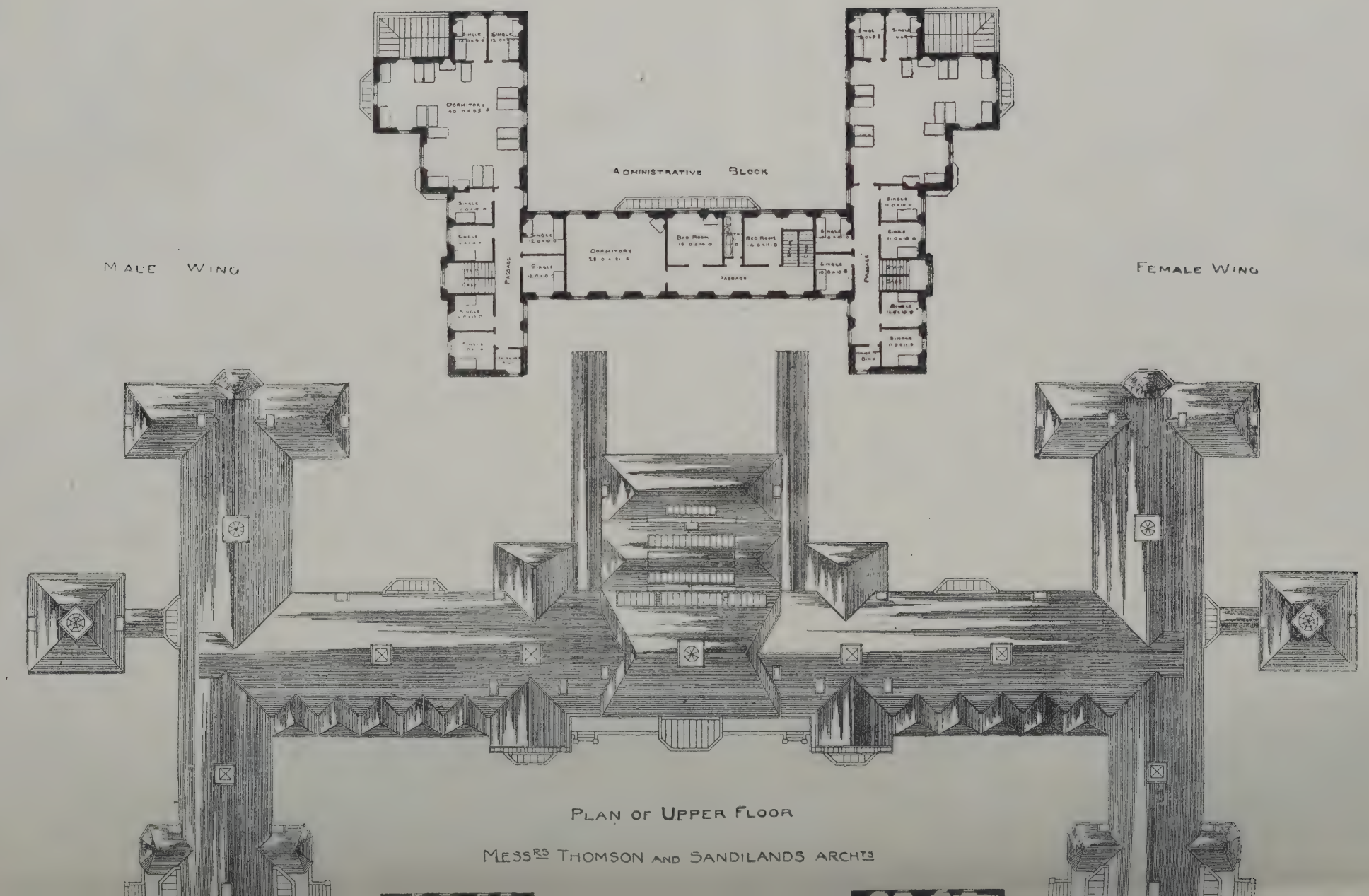
The Wesleyans at Eastwood, Keighley, ha erected, adjoining Victoria Park, a new chapel in place of the old premises, sold Midland Railway Company for £1,750. Th structure will accommodate about 400 chil the lower room, and in the upper room 426 in pews, and 150 more on the platform an benches. The contracts, which has been carr under the supervision of Messrs. W. and Bailey, architects, Bradford and Keighley involved an outlay of £3,300.

Mr. William Morris has been appointed of the Art Workers' Guild, in succession W. B. Richmond, A.R.A.

Mrs. J. T. Hibbert has intimated her in of building a church at Field Broughton, G over-Sands, at a cost of £3,000. She will al the site.

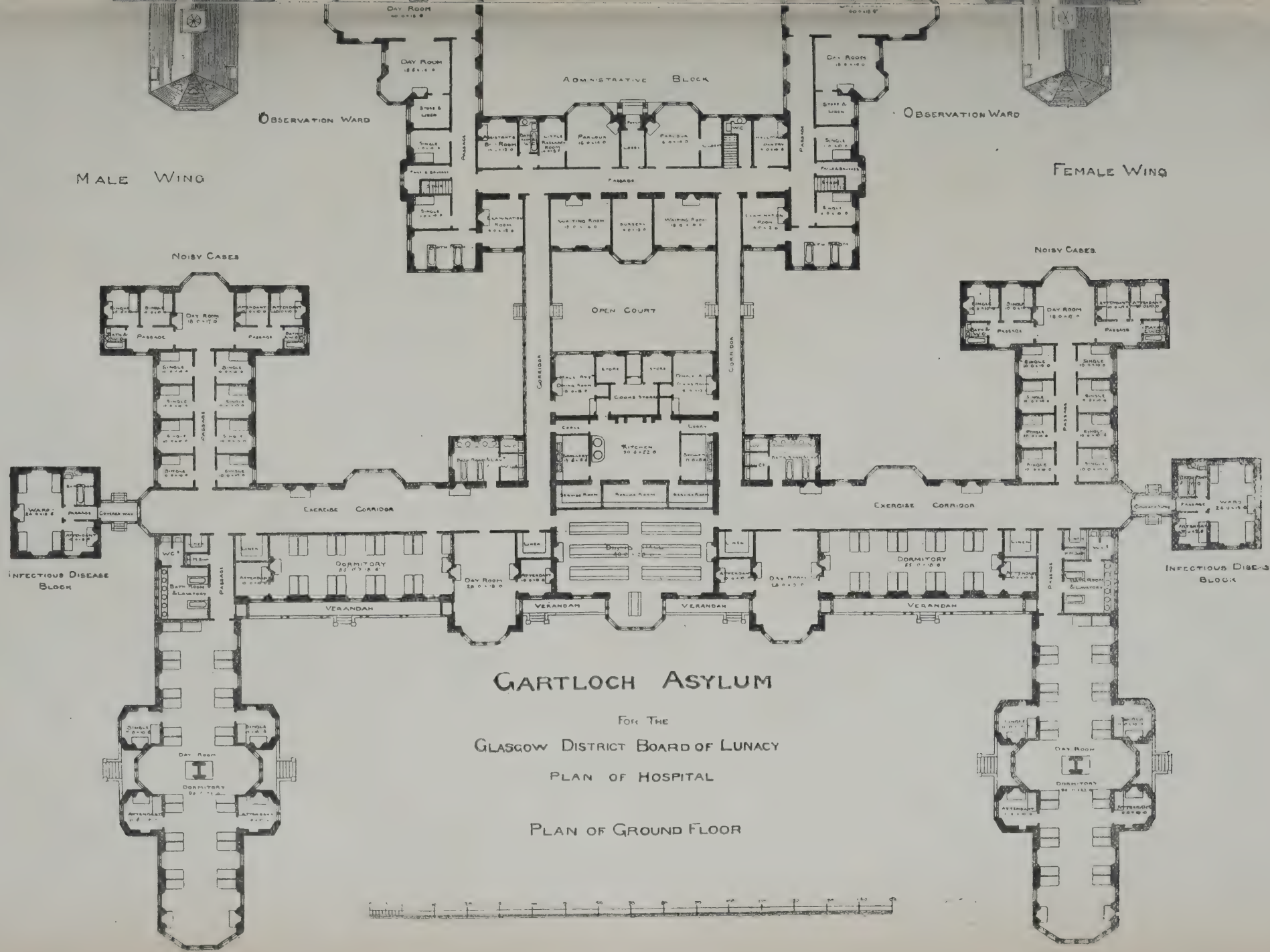
The second of a series of free fortnightly l under the auspices of the Glasgow Par Galleries Trust was delivered on Saturday e to a crowded audience in the Corporation Ga Sauchiehall-street, by Mr. James Payton, of the Galleries and Kelvingrove Museum lecture, which was profusely illustrated wi tern views, was descriptive of the Dutch which form part of the corporation fine art tion.

The Liverpool City Council have decid 26 votes to 17, to open to the public on afternoon the permanent collection of pict the Walker Art Gallery.



PLAN OF UPPER FLOOR

MESSRS THOMSON AND SANDILANDS ARCHTS


Observation Ward
Administrative Block
Observation Ward
Male Wing
Female Wing
Noisy Cases
Noisy Cases
Open Court
Exercise Corridor
Exercise Corridor
Infectious Disease Block
Infectious Disease Block
Verandah
Verandah
Verandah
Verandah
Dormitory
Dormitory
Day Room
Day Room
Kitchen
Dining Room
Corridor
Corridor
Passage
Passage
Gartloch Asylum
For The
Glasgow District Board of Lunacy
Plan of Hospital
Plan of Ground Floor

GARTLOCH ASYLUM.

HIS building is now in course of erection for the City of Glasgow District Lunacy Board, the building when finished will accommodate llows:—Asylum: Chronic blocks, 100 male 100 female patients; convalescent blocks, nale and 86 female patients. Hospital: rvation wards, 20 male and 20 female nts; acute wards, 10 male and 10 female nts; fever, &c., wards, 4 male and 4 female nts; day dormitory wards, 26 male and 26 le patients. A large dining-hall is placed in entre of the building, connected to the other of the building by covered ways. Over the g-hall is placed the recreation-room, pro- with stage, and two dressing-rooms entering staircase and opening on to stage. The en is placed immediately behind the dining- and connected to it by a service room ed with hot-plate for carving." Scullery nmodation is also provided, opening into g-hall and kitchen. The kitchen is one , with open-timber roof, lit from above, and ventilated. It is provided with large kitchen e, toaster, and boilers heated by steam. The and female attendants' dining-halls are placed h side, and convenient to the kitchen. These rge, well lighted, and intended to be used by ttendants when off duty as a parlour or ng-room. Immediately behind the kitchen laced the general stores, with cart entrance ack. This is also one story, with large ry, and lit from north side and roof. It is ded to have open-timber roof, and well lated. Around the general stores are several er stores for groceries, bread, soap, &c. To ast and west of general stores are placed the shops and laundry, both of which are pro- with two w.c.'s. The wards in asylum have two staircases each, to serve as escapes se of a sudden alarm of fire. Ample lavatory w.c. accommodation is also provided con- nt to wards, and the bath-rooms are so d as to serve for two wards. Special at- on has been given to the ventilation of rooms, as this is a very important considera- nd too often neglected in such institutions. e first place the boot-rooms are large and To further facilitate the ventilation of rooms, it is proposed that the pigeon-holes oots should be made of wire netting, so as to the air to pass more freely through amongst oots. All doors to single rooms to open out, a few of the rooms to have wood lining, d of plaster for destructive patients. In ses the single rooms have been arranged doors opposite windows, and the beds con- ntly placed relative to windows, so that the from the windows will not shine on the eyes e patient while in bed, and the most ap- d hung shutters to be adopted. All day- are placed on ground floor, and all tories in asylum block are on upper floors. dministrative block in main asylum contains room, doctor's room, clerk's room, male female waiting-rooms, matron, matron's ant, doctor, and steward's parlours and oms, and also a number of spare rooms, and ned to the dining-hall, kitchen, &c., by ed ways. The hospital block is provided dining-hall, kitchen, with store-rooms ed, day-rooms, large exercise corridors, ormitories, and sick dormitories. A small ious disease hospital of four beds is l at each wing of hospital block, attendants' room, bath, and w.c., joined to main block by covered ways. there are no infectious diseases in the n, the infectious disease blocks can be used nection with the hospital. In the other he door to the hospital can be closed, and fectious disease block entered from outside loor provided for that purpose in a covered A verandah is also placed in front of day , facing the south-west, where sick patients e carried to in fine weather. The mortuary ed a little to the north of hospital block the slope of the hill, and screened from by shrubbery. In this situation the mor- is very convenient to the hospital, and also ish road by the east lodge. The day-room tories have been planned to allow of con- t and cheerful sitting space in oriels y patient that may get up during the Linen closets, bath lavatory, and w.c. modation have also been provided. In lministrative block are the matron's room, 's assistants' room, bedrooms, and male and e waiting-rooms. The floor space allowed for each patient is as follows:—Day-room, 30sq.ft. per patient; dormitories, 60sq.ft.; day dormitories, 85sq.ft.; dining-hall, 12ft. All ceilings in wards to be 12ft. high, in day-rooms 13ft. The heating chamber, "agreeable to Government regulations," has been placed outside the building and under ground. The system of heating proposed to be adopted is by large steam boilers, 30ft. by 7ft. From this a 6in. pipe is taken to main asylum, chapel, and hospital block through a built flue under the various floors. This flue will also serve as a shaft for fresh air to supply stores, kitchen, &c., the fresh air being heated in its passage by its connection with the steam pipe. From this 6in. main pipe, 4in. pipe branches will be taken off at each side, and taken through under floors of covered ways to the intersection of bath-rooms. From this point 3in. branches will be taken to each ward to heat hot-water pipes. It is proposed to heat the various rooms by coils placed in the recesses of windows. Each block will have a separate valve for regulating heat, and if anything goes wrong only one block will be cut off. For the ventilation of wards, &c., it is proposed to take in the fresh air under windows. In this way it will pass over the coil, and get heated before being introduced into the rooms. Ventilators will be placed at ceiling for taking off vitiated air, each section having its own ventilator, so that no ventilating flue passes from one section to another, and in this way serve as a conduit in case of fire. Fireplaces are also provided to serve in the event of anything going wrong with steam boiler, and those to be fitted with Shorland's patent improved Manchester grates, with fresh air-pipes, the fresh air passing by the back of the grate and being heated, and passing into rooms by perforated holes in grate for the purpose. The fresh air, of course, will only be introduced in this way when the grates are being used instead of the heating pipes. The elevations have been treated in a simple and inexpensive style suitable for an institution of this kind. The cost of these buildings when finished, including doctor's house, chapel, farm-buildings, mortuary, and gate lodges, will be about £120,000. Messrs. Thomson and Sandilands, I.A., are the architects.

THE DRAINAGE OF TOWN HOUSES.

At a meeting of the Society of Engineers, held at the Town Hall, Westminster, on Monday evening, Mr. W. N. Colam, President, in the chair, a paper was read by Mr. G. M. Lawford on "The Drainage of Town Houses." After alluding to some of the now well-known defects in the earlier attempts at house drainage, the objects to be attained in carrying out a perfect system of drainage, with special reference to drains passing under houses, were stated to be as follows:—1, The primary disconnection of the house drain from the main sewer; 2, the thorough ventilation of the entire system; 3, the secondary disconnection of the rain and waste-water pipes from the house drain; 4, the immediate and absolute removal of all matters discharged into the drain from any source whatever; and lastly, 5, the construction of the entire system in such a manner as to prevent foul gases or currents of polluted air from entering the house, and of such materials as to preclude the possibility of the leakage or escape of both gases and liquids. Descriptions of the different forms of disconnection were given, showing the usual type of manhole with intercepting trap and air inlet. With regard to the ventilation of drains, attention was drawn to the fact that in order to create and maintain constant circulation an inlet is necessary as well as an outlet, the position of each being so arranged as to produce a current of air throughout the entire system. The questions of trap ventilation and siphonage were gone into, reference being made to the necessity for ventilating the traps on a horizontal tier of appliances, such as a range of lavatories, as well as those on a vertical tier, such as a soil-pipe. The separate trapping of every appliance was also advocated. The treatment of waste-pipes and the different forms of gullies were taken conjointly, the practice of doubly disconnecting the former by means of hopper heads being strongly condemned. The three essential factors for facilitating the immediate removal of all matters discharged into the drain were stated to be the size and inclination of the latter, and the water supply. Instances were given showing the sizes of drains in relation to the greatest possible volume discharged into them, and the advantages of using 4in. drains were described and advocated. The utilisation of automatic flushing for the removal of grease in preference to its collection by grease traps was also considered under this heading. The water supply and service was touched on briefly, special attention being given to the question of separate cisterns for closets and for domestic purposes, the author maintaining, in spite of the popular belief to the contrary, that, under the special circumstances described in detail, drinking water could be used with safety from a cistern supplying a closet. The construction of the entire system in such a manner as to prevent foul gases or currents of polluted air from entering the house was described as embodying the various points advocated in the paper—namely, thorough disconnection and ventilation, treatment of waste-pipes as disconnected soil-pipes; separate trapping for every appliance; 4in. drains combined with automatic flushing and a good supply of water. The question of the best materials for the prevention or escape of gases or liquids was treated under the three sub-headings of (1) the underground drains, (2) the rain-water, soil, and waste pipes, and (3) the appliances. Regarding the first mentioned, a comparison was given between stoneware and iron, the latter, though undoubtedly more expensive, being given the preference on account of the greater safety obtained by its use, the smaller number of joints required, and the certainty of sound joints between lead soilpipes and the underground drain. The ordinary painted rain-water pipe was described as a nuisance, owing to the certainty of its choking sooner or later from internal rust; and galvanised pipes were stated to be the best for rainwater, and lead for soil and waste-pipes. Regarding the appliances, urinals were alluded to briefly, the author considering them out of place in private houses, and advocating intermittent automatic flushing in all cases. The three forms of closet in general use, namely, the valve, wash-down, and wash-out, were described in detail, the former being considered best. The principal objection to the two latter, when made in one piece of earthenware, being the connection with the soil-pipe; but this difficulty was being overcome by the introduction of lead traps, specially adapted to pedestal closets. In concluding, the author drew attention to the necessity for testing all drains by hydrostatic pressure, as being the only test in any way resembling the pressure to which drains were liable when a stoppage occurred.

CHIPS.

New Wesleyan schools at Shorwell, I.W., were opened last week. Messrs. J. Linington and Son, of Chale, were the builders.

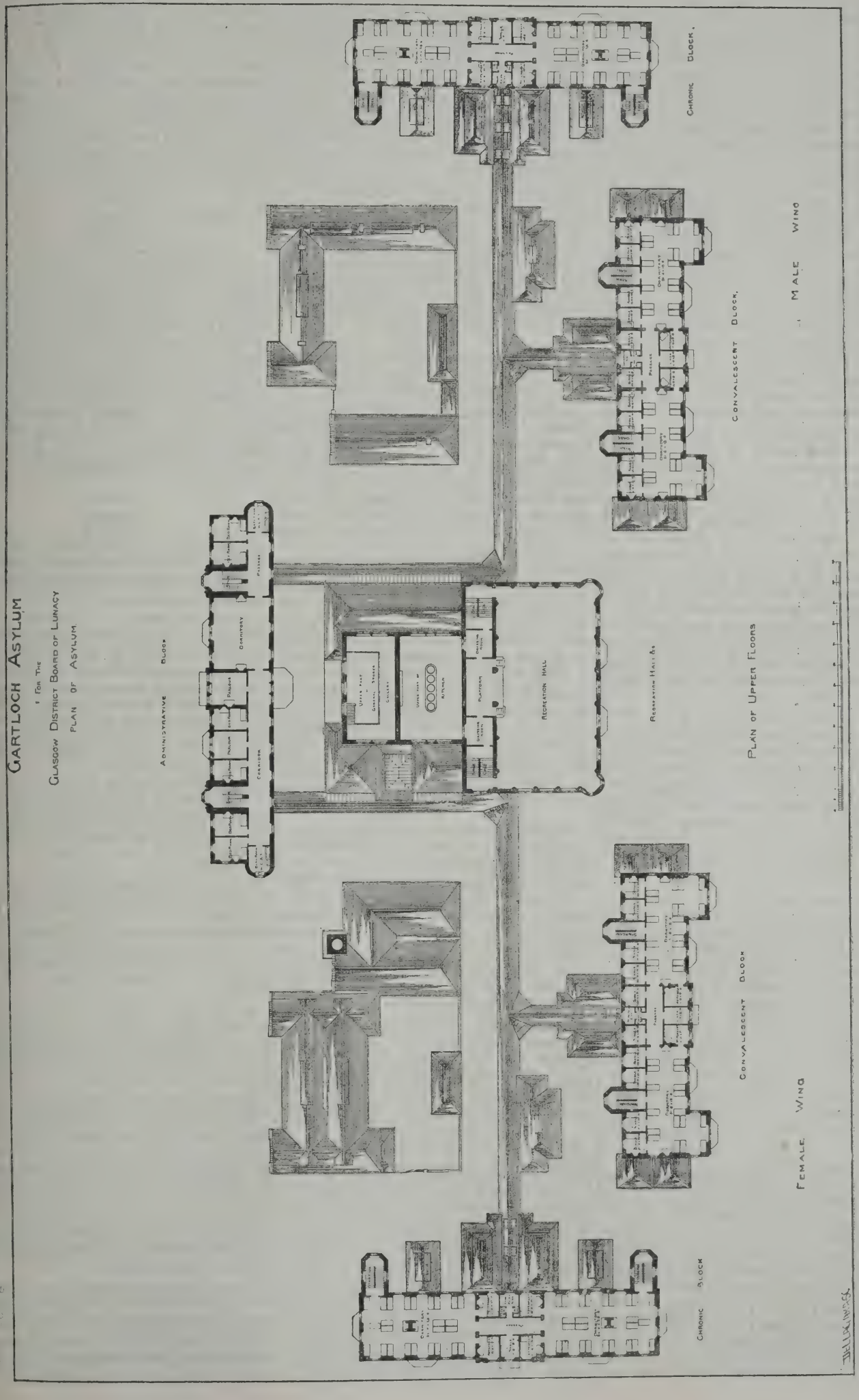
At the last meeting of the Mansion House Council on the Dwellings of the Poor, Mr. John Hamer, the hon. secretary, read the report of the work during the month, from which it appeared that from a further special inspection of Southwark 599 additional sanitary defects had been discovered and reported to the vestry. In addition to this, a block of "model dwellings" in Newington, on being inspected, was found to consist of 80 suites of rooms, the water-closets of which were all untrapped.

The new town hall at Lockerbie, Dumfriesshire, was opened on the 3rd inst. by Sir Robert Jardine, M.P. It is Scottish Baronial in style, and has been built at a cost of £6,000 from plans by Mr. F. J. C. Carruthers, of Dixons, N.B. The walls are of Corncockle red sandstone, with timber finishings of pitchpine. Mr. Wm. Lawson, of Lockerbie, was the contractor for masonry, and Mr. Wm. Douglas, of the same place, for carpentry and joinery.

The Stafford Town Council have instructed Mr. E. Pritchard, of Birmingham, to report on the scheme of sewerage proposed by their borough surveyor, the minimum payment to be 75 guineas, and the maximum 100 guineas, according to the extent of alternative suggestions which might appear necessary to Mr. Pritchard.

St. Anne's Church, Lancashire, erected in 1796, is to be rebuilt at an outlay of between £3,000 and £4,000.

Messrs. Waterlow and Sons, of London Wall, printers and stationers, have purchased about twelve acres of land, near High-street, North, Dunstable, and, following the example set by many other London printers, they intend removing their manufactory to the country. It is stated that this will give employment to 2,000 hands. Temporary iron buildings are to be put up so that business may commence at once.


GARTLOCH ASYLUM
FOR THE
GLASGOW DISTRICT BOARD OF LUNACY
PLAN OF ASYLUM
ADMINISTRATIVE BLOCK
CHRONIC BLOCK.
CONVALESCENT BLOCK.
MALE WING
RECREATION HALL
PLAN OF UPPER FLOORS
CONVALESCENT BLOCK
FEMALE WING
CHRONIC BLOCK

WAYSIDE NOTES.

INTERESTING accounts of the terrible earthquake in Japan appeared in the *Times* of the 8th inst., and gave one a better idea of the extent and destructive nature of this great convulsion than was to be obtained fron hasty telegrams. The account of the special correspondent gives details of the effect of the earth tremors on structures of various kinds, showing, for instance, how chimney shafts snapped in the middle of their height, and piers and columns sustaining heavy loads fractured at their lower extremities, and how the buildings erected on European methods of construction were destroyed, whilst the works of the Japanese builders were saved. The correspondent expresses a hope that the reports which will be issued on the subject of the earthquake and its results, will be found useful by architects and engineers. At first sight one fails to see how we can benefit in this country by the study of the effect of earthquakes on buildings; but when we consider—as the writer proceeds to point out—that so much work is done in foreign countries with English capital and from English plans, a knowledge of these effects cannot but prove serviceable at one time or another, since there are many countries ridden of earthquakes like Japan. It would appear, however, from these *Times* accounts, that so severe was the rocking motion of the earth in some places, that no construction in the world would have withstood the ordeal. When railway embankments are levelled, and the line of railway twisted up like a snake, arch abutments separate and let down the arches, and the ground itself is rocked up into waves like the ocean, it is evident that nothing in the shape and form of a building can remain standing. Still, the fact of the possibility of earthquakes that will shake anything to pieces should not deter the architect or engineer from devoting study to the subject of strengthening buildings against the minor tremors that are so frequent and common in many countries. I have no doubt that this is neglected wofully in London, plans for mills, factories, and large buildings of this kind being prepared for distant countries without any regard to the dangers of earthquakes. Walls of brickwork in mortar, floor upon floor of iron joists, superimposed column upon column — than which nothing more unsuitable to withstand horizontal movements of the earth's surface can be imagined—such as we employ in this steady, stable land, are the methods of construction adopted. The building takes its chance, generally a very poor one, as is demonstrated by the first serious tremor of the earth. I should imagine that the American architect with his all-iron buildings would be a good man for work of this class. With such construction, a building could be so well "tied" in every direction as to be proof against all baby earthquakes, and show a bold front to those of more matured growth.

I suppose—providing everybody to be safely out of the way—many persons would think it not a bad idea if an earthquake came along, and, confining itself to a few superficial yards, did a little business round by King's College. I notice that the green-eyed monster which has lately taken up its position on the college still remains in all its ugliness, although so many have endeavoured to crack it over the head, and Mr. Waterhouse attacked it with all the valiance of St. George when he "went for" the dragon. As you said last week, the attention attracted by the unsightly brick block has been turned to the subject too late in the day. The building, however, was "sprung" upon the public, and there is some excuse for the delay, as, until the work reached its full height, the eyesore was not apparent.

Many architects will have noticed with regret the letter of Mr. J. C. Robinson in the *Times*, a few days ago, touching the intention of the municipal authorities at Totnes with regard to the old grammar-school. It seems that it is proposed to erect on the site of the school an unsightly police-station. Mr. Robinson points out the beauty of the picture formed by the old grammar-school and town-hall, crowned by the grand old church, and further shows that the grammar-school site, so far from being suitable and convenient for the proposed police offices, is only approachable by way of narrow alleys and steps, and, furthermore, that the old grammar-school buildings would form an excellent museum, which institution Totnes at present lacks. It is so long since I was at this beautiful town, that I have a very hazy reminiscence of the group of old buildings of which Mr. Robinson speaks; but I quite believe it is worth all efforts to preserve. One would think that the authorities at Totnes would be fully alive to the desirability of preserving any old feature of the town calculated to attract visitors; and this little place on the Devonshire Dart is the resort of many such—from honeymoons to vagabonds and tramps. Towns of this nature live on their visitors, and Totnes can be no exception to the rule—rather the reverse, its romantic aspect and situation making it eminently a show-place. Therefore, as I say, one would imagine that those who hold the ropes of local government in their hands would not be so foolish as to destroy a single stone of the old architectural attractions of the place. It just occurs to me that perhaps some outside authority has had the power to take over the grammar school against the private wishes of the people of Totnes, and, if so, it is a wrong to these latter, and should be opposed tooth and nail.

There are many curious things happen nowadays that cause us to wonder and reflect. Among these I would put the proposal of the Salvation Army to bring a Bill into Parliament to override the provisions of the local Acts of Eastbourne, which as at present constituted insure a quiet, peaceful Sabbath to the inhabitants of that pleasant town. Another curiosity is the proposal of Messrs. Fry and Sons, of Bristol, to obtain Parliamentary powers for the removal of one of the city churches of Bristol so that they may use the ground for the extension of their business premises. Here we have two attempts of individuals and cliques to "best" the public and defy the commonweal, such as, if successful, would go far to prove this to be a mad world indeed, and be a strong, logical argument *against* the theory that Carlyle had a touch of the liver-complaint when he affirmed that the millions of English people were "mostly fools." Of the first I say nothing, comment on the subject being out of order in these columns; but of the second I would say that it seems to me to be an astounding thing that there should be enough chance of success for the promoters to feel that the attempt is worth the expense. Unfortunately, however, it would not be a solitary instance of the success of an attempt to make away with a place of public worship for private ends. The sop offered—viz., the erection of another church on another site, little affects the aspect of the case, viewed in its proper light.

Parliamentary Bill promoters, whether private or public, have a suaveness of manner that must be infinitely provoking to the parties their proposals concern. Thus the promoters of the Bill for the extension of the M.S. and L. Ry. to London, when the opposition of the members of the M.C.C. in regard to Lord's was felt, offered as sop a site adjoining the cricket ground, which it was pointed out would render the ground more of a square in shape. It transpired, however, that the ground in question was not the promoters' to give, proving to be the property of the Clergy Orphan Corporation, and now I see a letter in the *Standard* from a member of the committee of this corporation, stating that the proposal to buy the property will be "strongly opposed." The M.C.C., too, seem likely to offer opposition of a formidable character when the Bill is again brought forward, so that if the measure becomes law the promoters will have earned their success.

The storm of discussion in the *Times* respecting the great riddle seems to have subsided, and only low muttering remain on the horizon. A friend refers to it as the *wrangle*, and says there was no discussion at all, and this concurs with my own opinion as previously expressed. What is the practical outcome of the discussion or "wrangle"? I fear it is mere froth, the bubbles of which will burst and the wind go free. Things have changed no more since the appearance of the letters, than they did after the first outburst a year ago. The world wags much the same. If only the writers of the pros. and cons. had soberly discussed the relative merits of, say, round *versus* chisel-pointed pencils for geometrical drawing, the necessary qualification of architects' office boys, or some other really practical subject, we might all have be wiser. As it is, the end is more confused th the beginning; things intended to have be made clear have become enveloped in an i penetrable misty shroud, and the point in di cussion seems further off than ever of a defini settlement. In view of which I recommend t gentleman who starts another controversy abandon the senseless, disingenuous, double-fac title under which the two previous discussio have been carried on, and to find some hone straightforward heading for his communicatio Better still, let the subject rest, and find practical solution in the only way in which ever will be solved—by the lapse of time.

"Architecture: a Profession or an Art?"
R.I.P.

It is not often nowadays that we are privileg to listen to an address like that delivered Tuesday by Mr. Wyke Bayliss to the Society Architects. I shut my eyes now and again a fancied it was the early time of the Architectur Association again, and that Ruskin was thunde ing at us in the old Cockloft at Westminster, in Lyon's Inn, so much now and again did M Wyke Bayliss' matter and method recall those the great ex-Slade Professer. It is good no and then to hear the grand old Legend of Beau thus expounded; better, if the message inde quickens the artist-soul—or what there is left it in us—to deeds worthy of its calling, and t forsaking of the filth of fashion and the wiles the world.

GOTH.

CHIPS.

All the upper portion of the Benedictine Abb of Cormery, some eight miles from Tours, h fallen in. Not more than two-thirds of the edifi now remain standing, and even that portion is such a ruined condition that it is feared it will found impossible to repair it.

The colossal statues of the Mexican patriot Hidalgo and Juarez, ordered of Signor Orsini the Mexican Government, have been finished, an have this week been on view in Rome, in th studios of the sculptors, Concelli and Trabacchi.

At the Walsall County-court on Wednesda week, the Official Receiver concurring, his Hono Judge Griffith made an order for the transfer the bankruptcy case of Stephen Harding Terry engineer's manager, Hednesford, from the Walsa to the Hanley Court. The liabilities are estimate at from £38,000 to £50,000.

The Local Government Board has sent a cir cular to boards of guardians, calling attention t the provisions of the Public Health (London) Act 1891, and to the necessity of at once making regu lations respecting the prevention of nuisances The new law will come into operation with th ensuing year.

A new aisle and transept, which has been adde to the Seacombe parish church, were consecrate on Friday by the Bishop of Chester. The cost o the additions is about £1,600, and they provid additional accommodation for 250 worshippers.

A new hotel, chapel, and four villas will shortl be erected at Whitchurch, near Cardiff, from plan prepared by Mr. Charles C. Jones, architect, o Cardiff.

The City Court of Common Council have decide to adapt certain premises in Aldermanbury a offices for the city surveyor, chamberlain, and town clerk, at a cost of £8,000. They have also voted £21 for the execution of a bust in marble of the lat Right Hon. W. H. Smith, M.P.

The west window of St. Chad's Church, Hopwas has been filled with stained glass reporting event in the life of our Lord. The artists were Messrs Heaton, Butler, and Bayne, of Garrick-street, W.

By a fire which occurred on the night of Wednes day week in the chancel of the parish church o All Saints', Kirkby Overblow, near Harrogate the whole of the fittings and decorations o that portion of the building were destroyed. The accident is supposed to have been caused by a lighted lamp left by the organist being upset by a dog which had got into the church, and was found dead in the belfry. The church dates from 1243, and was "repaired" in 1781.

A sub-committee of the Bristol City Council has been appointed to consider and report upon the propriety of amalgamating the duties of the city surveyor and borough engineer. It has stated to the council that the cost of the departments now amounts to about £4,200 per annum, which is said to be considerably in excess of what is paid for simila work in other towns of corresponding size.

THE REMOVAL AND DISPOSAL OF SEWAGE.

MR. D. T. BOSTEL, of 17B, Great George-street, and 73, Ebury-street, S.W., the well-known sanitary appliance manufacturer, offers a new idea for the solution of the sewage problem. Everything proves (says Mr. Bostel) that the present system of removal and disposal of sewage is a failure; especially where the removal is by gravitation, pumping on the "combined" system, and disposal into the sea, river, or stream; also, if on the land, by "irrigation," "intermittent filtration," or, in fact, any other way. It has always been my opinion that to use water as the carrier of excrementitious matter is unnatural, proving disastrous wherever it is allowed to go. It is of little use to find fault, unless a remedy can be suggested; therefore I will endeavour to explained a practical one that I have discovered and thought out. From the remarks I have already made it will be seen I am in favour of what is known as the "separate" system, although I should not trust to gravitation alone to propel and deliver, but should use in conjunction therewith, "Shone's Compressed-air Ejectors," being able to send the sewage rapidly to cool, and afterwards to deliver it wherever wanted, irrespective of height or distance. For the sewers, especially between the ejectors, I should use iron pipes of as small a bore as possible, the jointing to be run lead or flange-bolted. Properly-planned connections to house-drains could be more easily and safely made than they are now, likewise examined, disinfected, or cleaned. Sewer ventilation would not be required, and, by reason of the absence of leakage, there would be no pollution of subsoil, which at the present time seriously affects the health of the inhabitants of most sewered towns; thus getting rid of contamination both of atmosphere and subsoil. The sewers would be used for the conveyance of excremental and liquid refuse only, which could be shot into tanks or reservoirs placed in elevated positions, and constructed in such a manner that if necessary it could be treated chemically, or otherwise for the best. My idea is that the demand for crude sewage would be so great and continuous that it would not often require treatment by chemicals. From the tanks would be laid leading mains, both for crude sewage and also effluent water. These would be so arranged as to work a powerful hydraulic engine that would put in operation powerful dynamos, generating electricity for lighting and power to farmers and others. These mains would be continued to the surrounding country district, and by branches to the various farms and market gardens, until, and in such a manner, every acre of arable or garden land could easily and cheaply have its natural nutriment whenever it required it. By this plan I can rid the town of a nuisance and injury, besides being able to drain every country village or farmhouse, preventing fever miasma from rising or forming, and the pollution of wells. Farmers could obtain cheap power to thresh corn, grind fodder, or anything else. Every road or lane could be lighted on dark nights, also country churches, chapels, and institutions. To this may be said, "A pretty picture; but what will it cost, and who will pay for it?" I have worked out both questions. The cost will first depend upon the position and size of the town. For my reply and your guidance, I have in mind a coast town containing about 100,000 inhabitants. This town, we will say, now drains into the sea, and all the country round is starving for that which the authorities throw ruthlessly away, having spent thousands of pounds to be able to do so. But this is not the only evil. When the town was sewered, no care was taken as to the jointing being sound—and this is so with all towns!—therefore the subsoil is every day becoming more polluted, affecting water-mains with unsound joints (and there are not a few of these about), and thus affecting the water supplied to the inhabitants. By contaminated air-currents the surrounding dwellings are likewise rendered unhealthy. All these facts must be taken very seriously into consideration. Then, with regard to the sea or river, it might be said in many cases, we have taken our sewage a long way from the town. This may be so; but then other districts spring up, and they pitch their filth into the same sea or river, causing the tides to leave their corrupt deposits equally along the shore; therefore the question is to be looked at in more ways than one. The re-sewering would be beneficial to the health and reputation of this and all other health towns. With these precautionary remarks, I will now say what the entire cost would be to do everything—viz., to devise and equip an entirely new system of sewers, with the Shone ejectors and compressed-air engines, mains, reservoirs, tanks, engines, telegraph wires, &c.—I put at about £200,000. Against the cost must be shown probable return or profit. The quantity of good crude sewage would be about 3,600,000 gallons per day. If this were sold crude it would fetch, say, 3d. per 1,000 gallons at the farm. But, for ease of calculation, say 20,000,000 gallons per week, or £13,000 per annum; estimated receipts for lighting and power, £7,500; or a total revenue of £20,500, a sufficient margin to provide many other beneficial improvements for the inhabitants of the town adopting my suggestion. But we do not leave off here—we have other and more vital benefits to consider, viz., extra productiveness of the land! I have consulted practical farmers upon this question all through, and they unanimously agree that it will double the production. One old farmer puts his case thus: "When I get 5 quarters of corn per acre I consider it very good; but if I could get that sewage at the right time, and as often as I required it, I could grow 10 quarters per acre, and harvest a week or fortnight earlier." Market gardeners and florists are still more sanguine of the great things they could do. I should just like to say another word about the health point. In the town I have in mind, the death-rate would be about 16 per 1,000, according to the Registrar General's returns; but if the removal of sewage were carried out in the manner I have suggested, I feel convinced the rate would never exceed 7 per 1,000. Added to this is the better health and increased working power of the inhabitants generally.

Mr. Bostel's suggestions are certainly worth careful consideration, and we shall be glad to see the more complete and elaborate statement of his idea, which he promises presently.

THE BRADFORD ISOLATION HOSPITAL.

ON Tuesday week, Dr. Barry, an inspector of the Local Government Board, made an examination of the new infectious wards erected by the Bradford Corporation in extension of the Fever Hospital, Leeds-road. The new wards stand upon the higher portion of the hospital grounds towards Hawksworth-street. The new isolation hospital is the only building of the kind in the kingdom, and is constructed on a special plan designed by Mr. Morley, of the firm of Morley and Woodhouse, 269, Swan Arcade, Bradford, the architects of the circular hospital at Barnsley in 1889. The new Bradford hospital has two wards, each 72ft. by 15ft., placed back to back, with a space of 3ft. between them. Bath-rooms, w.c.'s, slop sinks, and linen shoots are arranged at the end of each ward, and nurses' rooms adjoin the wards at the entrance ends, with supervision windows to each ward. A private ward is also provided. A special feature of the arrangements is an undressing-room for convalescents, where they leave behind hospital clothing, and then pass into a bath-room, and thence into a dressing-room, where their own clothes are put on, and from this room they pass direct into the outer air. An administrative department, communicating with the ward block by a covered corridor of glass, is provided, and contains kitchen, scullery, pantry, linen store, doctors' room, and matron's room on the ground floor, and several bedrooms for nurses, &c., on the upper floor, and the needful w.c. and bath accommodation. The washhouse block comprises a washhouse, laundry, drying closets, and a steam disinfecting apparatus by Messrs. Goddard, Massey, and Warner, of Nottingham. The drying closet, steam boiler, and washhouse and laundry fittings have been supplied by Bradford and Co., of Manchester. The drainage is divided into two separate and distinct systems. The one for roof and surface water goes direct into the mains, but all the foul drains empty into disinfecting tanks, which are duplicated, so that whilst one tank is being emptied after disinfection, the other is receiving the drainage, and going through the process of disinfection by an admixture of chemicals. Special arrangements are made for the destruction of the germs of disease. All the windows are made tight, and the fresh air is let in by three shafts from the outside, carried under floors and into the lowest compartment of the 3ft. space between the two wards. Above this compartment, and divided from it by flags with open joints, in another compartment, are placed the heating pipes, and from this compartment flues are carried into the wards which conduct the fresh air (warmed in cold weather by contact with the heating pipes last named) into the same through gratings in the floor, one being placed at the foot of each bed. Above the compartments above named is an extracting flue made perfectly air-tight, and into this flue openings are made at the ceiling level of the wards over each bed. A powerful furnace, with honeycomb fire-brick divisions, is placed in the cellar at the end of this flue, and this furnace draws the foul air out of the wards, and it passes through the furnace and out into the open air by a large chimney. Thus all vitiated air from both wards, w.c.'s, bath-rooms, &c. (which are all connected with the flue), passes through a furnace which is heated up to at least 800°, and therefore is more than sufficient to destroy all obnoxious germs. The working of the scheme has been properly tested by the anemometer, and it has been found that at least 10,000c.ft. per hour per patient can be passed through the wards, and out through the furnace, and that at the same time in cold weather a temperature of at least 60° can still be maintained in the building. Following the method adopted by Messrs. Flockton and Gibbs in their Sheffield Municipal Buildings design, the idea and plan of the hospital have been patented by Mr. Morley, in conjunction with Mr. E. Oldroyd, heating and mechanical engineer, of Crown Works, Leeds. The contractors of the building have been: — Mr. Farnish, mason; Wilkinson and Dawson, joiners; J. Wood, plumber, Cordingley and Sons, plasterers; Hill and Nelson, slaters; and J. Arundel, painter. Mr. Bancroft has acted as clerk of works.

CHIPS.

At the Yeovil County Court on Thursday in last week, the matter of the bankruptcy of Mr. Wm. Palmer, surveyor, of Bruton, came before the court. His Honour (Judge Machonochie) gave judgment on the application made by the bankrupt for his discharge. He granted the discharge on the debtor agreeing to judgment being entered for him to pay a dividend of 10s. in the pound to unsecured creditors.

A statue in honour of the late Mr. Henry W. Schneider has recently been unveiled at Barrow-in-Furness. The commission has been executed by Mr. Percy Wood. The statue, which is in bronze, is 10ft. in height, and represents Mr. Schneider wearing the mayoral robes. It is placed on a circular pedestal of polished Aberdeen and Swedish granite. The memorial occupies a commanding site near the Town Hall at the junction of the High Level Bridge and Dulse-street.

It is probable that the United States Government will issue the invitations to the International Congress of Electricity, to be held in Chicago in 1893, through the Governments to which those invited belong. It is thought that such an arrangement will give an official character to the proceedings of the Congress, and that some uniform system of standards may be agreed upon.

The foundation-stone of a refuse destructor, in course of erection for the Aston Manor local board, took place on the 25th ult. The works consist of an eight-cell destructor, roofed over, and in connection with same is a Jones' fume cremator, a chimney-shaft 100ft. in height, and an inclined approach for the carts to be drawn up to discharge the refuse on the top of the furnace, which is fed from above. The contractors are Messrs. Manlove, Alliott, and Co., engineers, Nottingham, and the engineer, Mr. Augustus Davies, surveyor to the Aston local board.

The Cannock school board decided at their last meeting to erect a girls' school, to accommodate 350, adjoining the infant school at Chadsmoor. It was decided to ask Messrs. S. Loxton, Cannock; Scrivener and Sons, Hanley; Ambrose Wood, Tunstall; Crouch and Butler, Waterloo-street, Birmingham; G. H. Cox, Temple-street, Birmingham; and F. F. Bailey, Walsall, to send in competition plans for the building, the cost not to exceed £6 per head.

The London County Council decided on Tuesday to form a new department, to be known as that of Public Control. It is to be under the direction of Mr. Spencer, now chief inspector of weights and measures, as chief officer, and is to consist of 4 clerks, 44 inspectors, and 42 assistants, all now in the employment of the council. Mr. Spencer's salary will be increased to £650 a year, and rise by yearly increments of £25 to £700 a year.

Building Intelligence.

Allahabad.—Another stage towards the completion of All Saints' Church, Cannington, proposed to be ultimately the cathedral of the Lucknow diocese, has been reached, as the new nave was consecrated on Nov. 12. The first stone was laid in 1871, but no portion was opened till January, 1877, when the chancel, transept, and a temporary nave were finished. That nave has now been demolished, and on its site stands the six eastern bays of the permanent nave. This has a length of 85ft., a width of 56ft., and a height from floor to top of ridge of 65ft. It is shut in by a temporary western wall of brickwork. The style is Early English, adapted to suit Indian climate and requirements. The material used throughout the edifice are white Scorajpur stone for the walling and red Mirapur stone for mouldings. The whole of the works have been carried out from the plans of Mr. William Emerson, by Messrs. Frizzoni and Co. The church now seats 700 persons. To complete the scheme there remain to be erected two western bays of the nave, the western façade and two flanking towers, and the central square lantern. The church was illustrated in our issues of Nov. 25 and Dec. 9, 1887.

Lamington.—A dedication service was held on Saturday at the new memorial chapel, erected by Lord Lamington, attached to the Episcopal Church in the grounds of Lamington House, near Biggar, N.B. The Bishop of Glasgow officiated. The entrance to the chapel is from the north side of the chancel, through a double archway supported by stone pillars; the exterior and interior walls are of stone, the roof being of open oak work. The windows, which are in keeping with the thirteenth century style of the chapel, are all but one filled with stained glass by Ballantine. The floor is laid with red tiles, and in the centre is a tomb to the memory of the late Lord Lamington. This is of marble and alabaster, surmounted by a Mediæval cross in relief, and with the inscription relieved on a gold ground. It was executed by Mr. John Rhind, Edinburgh. The architect was Mr. George Henderson, of Hay and Henderson, of Edinburgh.

Leamington.—Special services were held at Holy Trinity Church last week, in celebration of the reopening of the chancel, which had been lengthened by the addition of a new reredos and the filling in of the east window with stained glass, at the cost of one donor. The reredos is in the form of a recess, in depth 4ft., and in length 3ft. The three central bays of the arcade have panels of alabaster carved with natural foliage and emblematical devices. The other panels are filled with foliage. The carving was executed by Mr. Bridgman, of Lichfield. Within the Communion rail, the floor is laid with mosaics, and the steps are of Devonshire marble. The designs for the reredos were prepared by Mr. Jethro A. Cossins, of Birmingham. Mr. W. F. Lee carried out the stonework. Mr. Lee is now preparing, under the direction of Mr. Cossins, new stonework and tracery for the south transept window of that church, to be filled with stained glass. The work was designed and executed by Messrs. Heaton, Butler, and Bayne, of Garrick-street, W.C.

Leicester.—St. James' Church, Ayleston Park, Leicester, the second of the inexpensive churches built by the Leicester Church Extension Board, was consecrated on the 3rd inst. The contract for the fabric, which is to hold about 600 people, was £2,350, and of the heating, fences, chairs, and other fittings about £500, and of an ambulatory to connect the church with the mission-room about £100. The church is faced with white bricks, and red-brick dressings and dado; the roof is in one span, with tie-beam trusses. There is a baptistery at the west end, but the chancel is not yet built; the nave is 89ft. long and 42ft. wide inside. The architects are Messrs. R. J. and J. Goodacre, FF.R.I.B.A., and the contractors Messrs. T. and H. Herbert, all of Leicester.

It is announced in Tuesday's *London Gazette* that the partnership hitherto subsisting between T. C. Maxwell, J. Maxwell, W. C. Tuke, and F. W. Maxwell, under the title of Maxwell, Tuke, and Maxwell, of Blackburn, architects, surveyors, estate agents, and valuers, has been dissolved.

Engineering Notes.

The New Railway from Sheffield and Nottingham to London. — Some important changes have been made in the scheme for extending the Manchester, Sheffield, and Lincolnshire Railway Company's system to London. The chief alterations have reference to the Metropolitan terminus, which, instead of being placed on the site of Boscobel-gardens, Alpha-road, is to be brought forward to the Marylebone-road, and will thus front the same thoroughfare as the termini of Euston, St. Pancras, and King's-cross. Two new branch lines are proposed from the main line into the passenger station, one to a proposed coal depot near Carlisle-street, the other to form a junction with the Metropolitan Railway under the Marylebone-road. In carrying out these works the company will be compelled to close up certain streets and roads, in exchange for which they propose to construct two new streets, giving access over the area affected. The arrangements as to the taking of property in St. John's-wood for the purposes of a goods station remain as they were last session. Certain alterations have also been made in the country route, which will leave the scheme practically unopposed so far as the extra-Metropolitan part of it is concerned.

The Proposed Subway Railway Extension to Islington.—The Bill for power to extend the City and South London Railway to Islington has undergone material amendments since the rejection last session by a Select Committee of the House of Commons. In the present Bill it is proposed to connect the extension by a physical junction with the existing railway of the company, instead of a footway, thus removing one of the main objections raised by the committee to the Bill of last session. The new scheme also provides a subway for foot passengers, from the north end of Fish-street-hill to the proposed extension line, whilst power will be sought to connect (by means of a subway) the existing railway on the Surrey side with the London Bridge Station of the London and Brighton Railway Company. The terminus of the proposed extension in the City-road, Islington, will be at the same point as that proposed in the scheme of last session.

The Central London Railway.—Preliminary borings for this proposed railway, for which an Act was obtained last session, have taken place under the direction of the chief engineer, Mr. Greathead (the constructor of the City and South London Railway). The experiments have turned out, it is alleged, satisfactorily, the soil being very easy for working purposes. Profiting by his experience with the South London Railway, Mr. Greathead has suggested having a rather larger tunnel than was employed in that case, and that, instead of brick, it should be composed entirely of iron, the latter suggestion being due to the necessity for having a much stronger casing where there are so many heavy buildings as in the City and West-end. The tunnel will be a considerable distance below the surface. It is possible that, unlike the other electric railway, there will be two classes, and the length between the two termini (London Bridge and Shepherd's Bush) is too great to allow of the same fare being charged for any distance, for there are likely to be thirteen or fourteen stations. It has not yet been decided at how many points the tunnelling is to take place.

COMPETITIONS.

London, E.C.—The competition for St. Bride's Institute, on a site adjoining St. Bride's Churchyard, has been settled in favour of Mr. R. C. Murray, of Racquet-court, Fleet-street. There were about twelve competitors in the first contest, and these were reduced to three—viz., Messrs. Saxon Snell, Roger Smith, and Gale and Murray. The work will comprise a library, baths, &c., and will cost about £15,000. The design is in a Classic style to harmonise with St. Bride's Church.

Glasgow Art Galleries.—Fifty-five designs have been submitted in the preliminary competition for the Art and Music Galleries for Glasgow. Mr. Alfred Waterhouse, R.A., is the assessor, and commenced his duties of examination at Glasgow on Tuesday. He will select six designs, whose authors will be invited to take part in a second competition.

ARCHITECTURAL & ARCHÆOLOGICAL SOCIETIES.

Leeds and Yorkshire Architectural Society.—The first lecture of the present session of this Society was delivered on Friday night in the Leeds Law Institute, Albion-place, by Mr. Wm. Bruce, whose subject was "Cements, Concrete, and Lias Limes." Mr. W. H. Thorp (President of the society) occupied the chair. The lecturer said that if Leeds architects, contractors, and workmen were not interested in his subject, he did not know who would be, for it was a Leeds bricklayer who invented Portland cement, though his invention was a dead letter for a long time. In 1824, Joseph Aspin, a Leeds bricklayer, took out a patent for an admixture of limestone and clay, which from its resemblance to Portland grey stone, acquired the name of Portland cement. This cement was of considerable utility in the construction of the Thames tunnel. In 1848 Britain, he said, had only four important cement works, and the first really important one was started in 1859. Mr. Bruce pointed out that the German cement manufacturers long ago formed an association, and drew up standard rules defining the qualities of cement, and laying down methods of testing, and it was owing chiefly to this wise co-operation of her merchants that Germany was now turning out such large quantities of cement. Hitherto, English manufacturers had not generally seen the desirability of adopting a similar course. After touching on various technical points in relation to cement, Mr. Bruce went on to speak of concrete, and confined his observations in this connection chiefly to technical advice to his audience. Going on to speak of local matters, the lecturer said he had been much surprised and disappointed with the condition of house drainage in Leeds. When he came to Leeds some fourteen months ago he was surprised to see, and could not understand why the municipal authorities allowed and approved of, such work as could be seen any day in any district of the borough. He had had charge of large and important buildings in many towns, and his experience of other towns had been that building inspectors and borough engineers had encouraged improvements in sanitary science. But a very short time spent in Leeds municipal department was sufficient to show that the building by-laws were not administered in accordance with the principles of modern sanitation. The great mistake was in the erroneous administration of the by-laws. Very little or no provision was made for the ventilation of house drains in Leeds, but there was an ancient and faulty system of large gullies discharging into drains formed with injuriously large pipes, badly laid and badly ventilated. The lecture was illustrated by means of samples, tests, and tables of test-results.

The Public Health Act of London, 1891.—At the monthly meeting of the Sanitary Inspectors' Association on Saturday evening, at the Carpenters' Hall, London-wall, Mr. E. Lewis Thomas, hon. counsel to the association, gave an address on "The Public Health (London) Act, 1891." Mr. Hugh Alexander, chief sanitary inspector, Shoreditch, chairman of the council, presided. Mr. Thomas said that since 1875 several attempts had been made to codify the sanitary enactments relating to London. Those attempts had been unsuccessful until the present year, when there was accomplished for the Metropolis what had been done sixteen years ago for the rest of the country. They had, however, at last one sanitary code operative throughout the Metropolis, except in so far as regarded the powers exercised by the authorities who administered the Housing of the Working Classes Act, 1890, and the Common Lodging-houses Act. Mr. Thomas then entered into a minute analysis of the Public Health (London) Act, 1891, and explained the modifications which it had effected in previous legislation, and the powers which it conferred upon sanitary authorities. He expressed the hope that the London County Council would form a centre for the dissemination of information to local authorities with respect to outbreaks of disease, and the best means of dealing with them. Mr. Thomas further advocated the appointment of a Minister of Health, who should be a member of the Cabinet, and whose Department undoubtedly would be one of the most important in the Government. The draughtsman of the Act passed this year had done his work well, and it remained to be seen what the vestries and district boards would allow the sanitary inspectors to do with it.

TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, 332, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

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NOTICE.

Bound volumes should be ordered early (price Twelve Shillings each), as only a limited number are done up. A few bound volumes of Vols. XL., XLI., XLVI., XLIX., L., LI., LIII., LIV., LVIII., LIX., and LX. may still be had, price Twelve Shillings; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

F. HARRISON. (Better join the Society of Architects. If you write to the secretary, Mr. G. A. T. Middleton, St. James's Hall, Piccadilly, W., he will send nomination papers and all particulars.)

"BUILDING NEWS" DESIGNING CLUB.

"PROGRESS G." (Your drawing received, but it is drawn on too large a sheet of paper. See rules, where size is given.)—FRANK B. SMITH. (Your drawing *was* acknowledged in our issue for Nov. 20th last.)—R. H. H. CLUEAS; SPINHX.

Correspondence.

RE "CRAFTSMAN ARCHITECT."

To the Editor of the BUILDING NEWS.

SIR,—Mr. Wilson's advice in his paper on the late J. D. Sedding, that "the designer ought to erect his own building," is surely a note in the right direction. But it is hardly desirable that he should turn "builder," there being already a plethora of that genus—otherwise builders' clerks—in the market, devoid of every particle of sympathy with their work beyond that of £ s. d. In works of any magnitude, I should like to suggest the abolition of the conventional "builder." There are plenty of men of real practical and administrative ability among the ranks of builders' foremen and clerks of works to take his place—men with a love, almost innate, of their work. The best work we can get from the average builder is but a compromise. Some of the very best of our buildings erected in the metropolis and other places in recent years have been carried out in a way similar to that I suggest. The architect would then be entire master of the situation, the building manager working under his supervision and to a schedule of prices. It is within my own knowledge that churches—some of the best—have been built by a contractor whose practice was to buy plant for each separate contract, disposing of it by sale at the completion of each job, thus saving establishment and other expenses. Surely an architect could do this!—I am, &c.,

VIGILANT.

"ROGERS v. JAMES."

SIR,—If the plaintiff in the above case is a member of the R.I.B.A., I quite agree with "J. R. W." (and your suggestive "if!"), "that, in the interest of the profession," it might be as well for the Institute to take action on the case, but not in the law courts.

I have not seen the *Times* report of the case referred to, but the *ex parte* letter in your issue of the 27th ult. sheds some side-lights on the matter that "J. R. W." seems to have overlooked or blinked.

The balance of fees was reduced by half, and the explanation of it that "the major portion for designing and carrying out furniture and decorative work for which he charged 10 per cent.," is not very clear, as the only item in dispute mentioned is "concrete under footings," implying a different class of work in an expenditure of £2,000.

But it is to the omitted concrete that "J. R. W.'s" attention might have been usefully directed "in the interests of the profession" What is said about it in the letter of the 27th ult. is rather conflicting, and so contrary to ordinary practice as to suggest inaccuracy or laxity. If the omitted concrete was not necessary (which the architect must have seen if he "paid daily visits at the time," for all architects look carefully to foundations, or should do so), he ought at once to have given an order to the contractor to omit it, and deduct for the excavation and concrete so admitted. It is silly to talk of "taking advantage of absence," or of deducting for "underpinning the walls in cement," unless the contractor was to be let "give a yard and take an ell" *or two*. Still, it may be all right with "decorative" or "art" or "craft" architects, although some may prefer the old commonsense way.

M. M.

Intercommunication.

QUESTIONS.

[10676.]—**Lime.**—I shall be greatly obliged for enlightenment on the following:—So far as I can ascertain, no one nowadays seems to understand scientifically the action of ordinary rich limes, from the burning of the stone to the using of the resultant mortar. I read that the Romans passed a law that no lime should be used till it had been slaked three years. I also know that contracts frequently stipulate that mortar must be, at least, three months old before being used. Yet the consensus of opinion seems to attribute the setting of lime to hydration, the carbonisation it ultimately undergoes taking so long to accomplish as to be of little practical value. I also know that hydration, as in Portland cement, so in lime, takes place almost at once, e.g.: If I take a piece of limestone, say magnesian or mountain limestone, burn it, and slake it, I resolve it into a paste at once, which will set hard in an hour, without contact with bricks, &c. (I have done this often.) If, then, this hydration takes place so quickly under these conditions, how can it be good to prevent the resultant setting by leaving the lime slaked only to a dry powder till wanted, or to add so much water as to prevent the setting, as the Romans appear to have done, and as the ordinary contractor nowadays appears to do? After the lime has lain for months with far more water than it can take up, and, therefore, the process of hydration spent, what makes it set when it is used as mortar? If it does not set when in a thin, pasty mass by itself, why should it set because placed between two bricks, and how long is it supposed that that pasty mass will keep as such without deteriorating? Indeed, judging from the way people act, it would seem that the longer it is kept the better mortar it makes. I have no doubt the scientific explanation of the foregoing will prove very generally interesting.—H. C. SWAN.

[10677.]—**Testing Mortar.**—Will anyone kindly inform me how to find out the quality of mortar when it is mixed?—INDOCTUS.

[10678.]—**Surveying.**—In measuring a field with a very big fall, do you take the actual surface or the horizontal, as in a map?—A. W.

[10679.]—**Perspective.**—Will someone kindly explain if the ordinary method of setting up a perspective from a plan, as described in Spon's Pocket book, can be used for internal views, and how? In an ordinary-sized room, what is a good distance for the point of sight? Any practical hints would be received with thanks.—A. W.

[10680.]—**Lead Roof.**—I would feel thankful to any reader of the BUILDING NEWS for reply to the following query:—If good old 7lb. lead, which is a roof covering 70 years, can be taken off old, flat roofs, and re-used on the modern system, viz.: steps and rolls on new timber roofs?—FRANCIS NUNAN.

REPLIES.

[10663.]—**Timber.**—Mr. W. Stevenson's reply to "Woodenhead" does not clear up the confusion referred to by the latter. Mr. Stevenson says "that red pine, Pinus rubra as in Hurst's handbook, should read Pinus resinosa." Now, Michaux, in his "North American Sylva, Philadelphia," ed. 1850-51, p. 67, Vol. III., states:—"The bark upon the body of the tree is of a clearer red than upon that of any other species in the United States; hence is derived its proper name, and hence I have substituted the specific epithet 'rubra' for that of 'resinosa' employed by Aiton, and adopted by Sir A. B. Lambert. Another motive for the change was to prevent a mistake to which many persons would be liable of supposing that this species affords the resinous matter so extensively used in shipbuilding." The fact is, Mr. Stevenson has followed J. C. Loudon, who obtained his information from W. Aiton's "Hortus Kewensis" (a catalogue of plants cultivated at the Royal Gardens of Kew, and published in 1810); whereas it is evident that Mr. Hurst has followed Michaux, who is certainly the best authority on North American timber trees, and an eminent botanist into the bargain. As to Mr. Hurst's statement that the red pine is a mere variety of the Pinus sylvestris, it may or may not be correct, as it all depends on the definition of the term "species." In these Darwinian days the tendency is to widen the definition; and as the red pine of America has much in common, botanically, with the Scotch fir (P. sylvestris), some would consider them mere varieties, the coarseness of grain, or colour of the wood or bark, which are dependent on soil, having nothing to do with the botanical classification. As to the grain of the Pinus sylvestris being finer than that of the red pine, Michaux describes the wood of the latter "when wrought as exhibiting a fine compact grain." In many cases there is no doubt it has more sap than the better quality of Baltic pine. But again to quote Michaux, p. 67: "The timber is said to consist in too great a proportion of sap; but the objection appears to me unfounded. Several trunks 1ft. diameter that I have examined contained only 1in. of sap." Again, Mr. Stevenson states that the red pine "is a soft, mild, undurable wood, of no special value in the trade"; but Michaux says: "In Canada, Nova Scotia, and the district of Maine it is highly esteemed for strength and durability, and is frequently employed in naval architecture, especially for the decks of vessels, for which it furnishes planks 40ft. long without knots." Mr. Laslett, who was, I believe, a timber inspector in one of H.M. dockyards, and may be credited with knowing something of timber, on p. 271 of his book on Trees, says: "It is tough, elastic, moderately strong, and possesses a clean, fine grain, which works up well, leaving upon the surface a smooth, silky lustre. It is not apt to shrink, split, or warp much in seasoning, and, technically speaking, it stands well, which renders it a choice and very valuable wood for all kinds of construction." And, further on, he adds: "It has but little albumen or sap-wood. In reply to "Sappy," I would refer him to Michaux, "N.A. Sylva," p. 66, Vol. III., from which I have taken the following botanical names, viz.:—

Two-leaved Pines
Cones Smooth.
Red (Norway) Pine..... ..... Pinus rubra
Wild Pine or Scotch Fir .... Pinus sylvestris

Three-leaved Pine.
Cones Smooth, or with Small Thorns.
Long-leaved Pine .... Pinus Australis

Cones very Thorny.
Pitch Pine .... Pinus rigida

Five-leaved Pine.
White Pine .... Pinus strobus

Loudon, in his "Encyclopædia of Trees and Shrubs," following Miller's "Gardener's Dictionary," also gives Pinus rigida for the pitch-pine, which, he says, "is the name it is known by all over the United States." The fact is, that what is called pitch-pine in this country, and named Pinus resinosa by Gwilt in his "Encyclopædia of Architecture," p. 499, ed. of 1857, is really not the true pitch-pine at all, but probably the long-leaved pine (Pinus Australis) of Michaux.—J. S.

[10670.]—**Infectious Diseases Hospital.**—One of the best books on the planning and construction of above hospital is that issued by the Local Government Board as a Parliamentary paper of 1882, viz.: "On the Use and Influence of Infectious Hospitals," by Dr. R. Thorne Thorne, Assistant Medical Officer to the L.G.B., with many maps and plans, price 14s. 6d. The Local Government Board also have issued "Specimen Plans of Small Hospitals for Infectious Diseases" (four, six, and ten beds), and "On the provision, by Local Authorities, of Hospital Accommodation for Infectious Diseases." The last named is also published by Messrs. Knight and Co.—C. C. S.

[10670.]—**Hospitals.**—I should think that "Sanitary" will find "Hospital Construction and Management," by F. J. Mouet, M.D., F.R.C.S., and H. Saxon Snell, F.R.I.B.A., will be about the best and most modern book he can get on the subject, and may most likely be bought from Batsford, of High Holborn.—T. W. HUDSON.

[10673.]—**Evening Classes.**—Mr. Busbridge, a most competent teacher, holds classes all over London. The fees are moderate, and the instruction sound. His address is, I think, "Grasmere," Plumstead.—T. F. MAY.

[10674.]—**Wood-Block Floor.**—I would suggest to above that the soil on the outside of the building be lowered at least 6in. or 9in. below level of floor, and a channel of brick or concrete formed round the building, with a fall to the lowest end for the water to run into a tank, which can be pumped out any time it requires the same. This is about the only way to remedy same, and is often used in our old church restorations, where the yards rise considerably in the course of a few years. Of course I need hardly say make the tank large enough to take whatever quantity of water is likely to collect.—T. W. HUDSON.

[10675.]—**Laying-out and Drainage of Burial Grounds.**—"Gottsacker" will be able to find much valuable information in "The Municipal and Sanitary Engineer's Handbook," by H. P. Boulnois, M.Inst.C.E., (publishers, E. and F. N. Spon), from the chapter on "Cemeteries," and from "New Law of Burials for Sanitary Authorities," which is fully annotated, and contains practical suggestions, &c., by T. Baker, barrister-at-law. Knight and Co., Fleet-street, publishers.—C. C. S.

The Wesleyan chapel at Wetherby was reopened on Sunday after reflooring, the substitution of a rostrum for a pulpit, and of pitch-pine seats with stall ends for high pews. The chief contractors were Messrs. J. Parnaby and A. Allen, of Wetherby.

Legal.

QUANTITY SURVEYOR AND BUILDER.

It has often been urged that a good and valid custom exists by virtue of which upon a contract being entered into by an owner with a builder through an architect, the previous employment of a quantity surveyor by that architect as agent for the owner, is at once shifted into an employment by the builder, who thereby becomes liable to pay that surveyor for taking out the quantities. The existence and validity of that custom has now been recognised and upheld by a Divisional Court composed of Mathew and Smith, J.J., in the recent case of "North v. Bassett" (18th Nov.) see *Law Times*, 28th Nov., p. 61. That was an action by the plaintiff, a quantity surveyor, for fees alleged to be due to him from the defendant, a builder. The plaintiff had been employed by the architect in the usual way to take out quantities for a certain building. The defendant tendered for the work; his offer was accepted, and a contract entered into. In the estimate there was the usual clause as to the payment of his stated fee to the plaintiff, as quantity surveyor, and of the first certificate. Plaintiff applied for his money, and as the builder refused, he brought this action in the Lord Mayor's Court, London. At the trial evidence was given that the custom is that the architect employs the quantity surveyor, who supplies the builder with the quantities, and who is responsible to him for their accuracy; then the surveyor's fees are added to the builder's estimate, and are paid by him out of his first cheque. The plaintiff was nonsuited on the highly technical grounds that there was no priority of contract between the plaintiff and the defendant, and that the plaintiff could not sue upon the tender as he was not a party to that document. It was argued also, upon the plaintiff's appeal, that the only person liable was the architect. The Divisional Court, however, held that the nonsuit was wrong, and sent the case back to be tried again. They also ruled that the custom sworn to did exist, and was notorious, and that, therefore, the defendant, as builder, became liable to pay the plaintiff, as quantity surveyor, his fees upon the promise implied by that custom, and by the acceptance of his tender based upon the quantities so taken out and supplied by the surveyor. It is satisfactory that so important a point of practice should be thus far settled in accordance with usage and common sense.

Fred. Wetherfield, Solicitor.
1, Gresham Buildings, Guildhall, E.C.

Note.—All questions for reply in this column must be headed "Building News," and must reach my offices, as above, by *Tuesday* morning to insure answer same week.

W. E. D.—Wall.—Erection.—Prospect.—You are certainly quite right in advising that there is no legal remedy in the way of damages in this case, as the erection is not a trespass, neither does it interfere with light and air, although it may damage the prospect or appearance of your client's property. This gives no ground of action; but perhaps the district surveyor or local board people might be persuaded to interfere.

Bricked Up.—Right of Way.—Dog.—Upon the facts stated, it is clear there never has been a legal right of way over this ground. The proprietor of the house A never had any right of way over the adjoining land; but had merely a hole in his own wall opening thereon for his dog to enter. This would not create an easement, even if it had been enjoyed long enough, and had not been abandoned, as the case states.

LEGAL INTELLIGENCE.

In re J. Greenwood.—James Greenwood, builder and contractor, carrying on business at Maltby-street, Bermondsey, and 86, Cannon-street, E.C., against whom a receiving order was made on the 4th ult., has submitted a statement of his affairs showing liabilities £12,330, of which £5,541 are unsecured, with an estimated surplus in assets of £7,136. The debtor states that he commenced business originally about 26 years ago, and his total capital, including his private property, amounted on October 1, 1889, to about £25,000. He attributes his failure to losses on trading and contracts, chiefly through depression in the building trade, the severe winter of 1890-1, and the recent long strike; also to his inability to realise his property, to his lack of available capital, and to the consequent pressure by creditors. The debtor has not lodged any proposal.

Mansbridge v. Woods.—In this case, which was heard in June last, Mr. Justice Hawkins gave judgement on Monday, Dec. 5, in the Queen's Bench Division. It resulted in an unexpected manner. The plaintiff, Mr. Mansbridge, a builder, sued Mr. Woods for balance due on account of a house he built for him at Bellagio. The defendant alleged that the contract had not been properly carried out, and charged plaintiff and his architect with collusion and fraud, also counterclaiming accordingly. The case was eventually, by defendant's wish, referred to a quantity surveyor, appointed under the Arbitration Act by the President of the Institute of Architects. Mr. H. F. Dickens, who appeared for the plaintiff, said this was an instance of an unfounded charge recoiling on the accuser's head. The referee, a Mr. Thacker, had estimated the house on "measure and value," and had accordingly valued the house at £1,702. The original contract, which the defendant had repudiated, was for £1,425, of which he had paid £1,325. The plaintiff claimed the balance of £100, or, as an alternative, £185 balance, estimating the house on "measure and value." The defendant, by his own action, had therefore rendered himself liable for a larger sum. Mr. Tindal Atkinson, for the defendant, contended that his client was entitled only to pay the original claim on "measure and value"—namely, £185, arguing that that was all that the plaintiff claimed, and was his own estimate of the work. Mr. Justice Hawkins, in delivering judgment, said that the defendant having agreed to refer the question, he must abide by the result, whether favourable or not to him, and he should therefore give judgment for the plaintiff for the £377, difference between the contract price and the referee's estimate, with costs, including those of the referee. Judgment accordingly.

Re John O'Kill.—This debtor was a builder in Picton-road, Wavertree, and came before the Liverpool Bankruptcy Court on Friday with a statement of affairs showing liabilities £1,367 expected to rank against the estate for £591, and assets £151 15s. 10d. He attributed his failure to bad trade, losses on contracts, and shortness of capital. The Registrar ordered the cash-book to be written up, an amended statement of affairs to be filed, and also a deficiency account. The examination was adjourned to January 14th.

Swansea.—Important Rating Appeal.—Under the revaluation of the Swansea Union, which has been in progress for a considerable period, several appeals have arisen and been carried to the Quarter Sessions of Glamorganshire. One of these appeals, that of the Atlantic Patent Fuel Company, was by agreement referred to the arbitration of Mr. Samuel Green, F.S.I., of London, and involved the question which has given rise to so much heartburning—viz., the correct method of dealing with machinery for rating purposes. The arbitrator, having held several sittings, at which Mr. Eve appeared for the Union, and Mr. Humphreys-Davies, Surveyor to the National Association of Machinery Users, for the appellants, has now made his award, reducing the assessment from £1,762 to £1,412, and ordering the costs of the arbitration to be paid by the assessment committee and overseers.

In re F. W. Fryer.—Under a receiving order made against Frederick William Fryer, architect, surveyor, and newspaper proprietor, carrying on business at Loudoun House, Surrey-street, Strand, a statement of affairs has been submitted showing liabilities £2,790, of which £2,735 are unsecured, with assets £62, in addition to certain other property of which the value is unascertained. From the observations of the Official Receiver (Mr. H. Brougham) it appears that the debtor commenced business in 1886. In April last he published a trade journal, which he recently assigned to a company in consideration of £2,000 in shares and £500 to be paid in cash; but, in consequence of the company not being successfully floated, such shares and purchase money are of uncertain or no present value. He attributes his insolvency to the non-fulfilment of the contract to purchase this journal, to loss and liabilities on accommodation bills, to heavy interest on borrowed money, and to loss through failure of a builders' institute, of which he was the originator and vendor to a company. The debtor has not lodged a proposal, and has been adjudged bankrupt.

STAINED GLASS.

Bradford.—The four side chancel windows of St. John's Church, Bradford, which have now been filled with stained glass, completes the series of illustrations of the Passion as originally designed by the artists, Messrs. Powell Brothers, of Leeds, to whom this work was entrusted.

St. Andrew's Church, Yeadon.—A stained-glass window has been placed in this church, illustrating the event in St. Andrew's life which led directly to his martyrdom, namely his conversion to Christianity of Maximila, the wife of a pro-consul, Ægeus. The work is from the studio of Messrs. Powell Bros., of Leeds.

Our Office Table.

Lord Basing, a past-president of the Local Government Board, and the most active promoter of the Public Health Act, 1875, is entitled to be regarded as an authority on sanitary matters. His Lordship in distributing at Southampton the other day a number of certificates of registration, granted by the Plumbers' Company, London, said he felt very pleased that so large a number of those engaged in the trade in that part of the country had obtained the certificates. He had been interested in the subject for some years past, and had attended more than one meeting of the Plumbers' Company. The nation was at that moment in deep anxiety as to the health of a member of the Royal Family, whose illness, for aught they knew, might have been brought about by some defect in house plumbing arrangements, which it was the object of the registration system to prevent and get rid of. The plumbing industry was essential to the health and comfort of dwellers in houses, and he thought it was high time for the nation to be aroused to the fact. He hoped the time had now arrived when certificates of competency on the part of the plumbers would be as much a matter of course as certificates of competency had for some time been on the part of pharmaceutical chemists. Lord Basing subsequently presented several prizes and certificates of merit given by the Plumbers' Company to successful students in the plumbing classes at the Hartley Institute, Southampton.

M. Alphand, the Director of Public Works in Paris, whose death was prematurely announced last week, died from paralysis on Sunday morning, after a fortnight's illness. Born at Grenoble in 1817, he was appointed in 1839 Surveyor of Roads and Bridges at Bordeaux. M. Haussmann, then Prefect of the Gironde, appreciated the ability and activity shown by him in embanking the Gironde, and when himself summoned to Paris he took Alphand with him. Haussmann did much to clear away slums and open new boulevards, and Alphand was his chief assistant, being especially clever in designing public gardens and promenades. He took an active part in the Exhibition of 1878 and the leading part in that of 1889, which he planned, also arranging the fêtes and other attractions. In acknowledgment of the unprecedented success of the latter exposition he was made a Grand Cross of the Legion of Honour, a rank not before reached by a civil engineer. He also succeeded Haussmann last year in the Academy of Fine Arts.

At the last meeting of the Hastings board of guardians, a long and animated discussion took place with regard to the charges of Mr. Tree, of Hastings, as their architect for the erection of the new workhouse. Mr. Tree has been paid £1,450 on account, the outstanding bill being £4,137, making a total of £5,587. At the previous meeting of the board it was objected that Mr. Tree ought only to be paid commission on the original estimate of an expenditure of £50,000, and as a result of a conference with a deputation from the board, a letter was read from Mr. Tree offering without prejudice to reduce his bill by £800. Mr. Perrins moved that Mr. Tree's offer be accepted. He pointed out that a law case would be the alternative to settling the bill, and declared that in a court of law the guardians would stand no chance. This was supported by three other members; but Mr. Reeves spoke in opposition, alleging that Mr. Tree had blundered, and that he should only be paid in respect to a building which cost £50,000. On being put to the meeting, Mr. Perrins' motion was lost by seven votes to twelve. Mr. Chapman next proposed that a cheque be drawn in favour of Mr. Tree for £1,000 on account; but this was defeated by ten votes to seven. Mr. Miller then proposed that they pay Mr. Tree £3,137 to settle his account, being equal to a reduction of £1,000. After an animated discussion, this proposition was also lost by nine votes to ten. Consideration of the matter stands adjourned.

It having been finally decided to retain the whole of Coldbath-fields Prison site for parcel post purposes, the Postmaster-General offered to remove the old prison wall and substitute iron railings from the corner of Calthorpe-street to Oldham-gardens, Farringdon-road, setting them back to increase the width of the street to 60ft., on the condition that the vestry will reset the

pavement and remake the road. Originally it was intended that the entire site of the disused prison should be utilised for industrial dwellings or maintained as an open space, but the sum of £10,000 has been paid to the London County Council in lieu of the reservation of even a part of the land as a recreation ground. It is suggested that more open spaces are not needed in Clerkenwell, and that the £10,000 will be most usefully employed as a contribution towards the erection of a town-hall, on the line of the new thoroughfare from Holborn to the Angel.

Sir J. C. Robinson raises a protest in the daily Press against the proposal of the Totnes town council to destroy the ancient grammar-school which adjoins the picturesque town hall, and to erect in its place a new police-station. The grammar-school, town-hall, and parish church ferm a most interesting group, and while the site is unsuitable for police-station purposes, there being no carriage approach, the grammar-school could, he suggests, easily be adapted to serve as a town museum—an institution which Totnes does not at present possess.

The authorities of the Metropolitan Museum of Fine Arts at New York are endeavouring to bring together a representative collection of casts of architectural subjects and objects of art. The estimated outlay is 100,000 dollars (say, £20,000), of which the museum authorities have about two-thirds in hand, and the work is being carried out in a systematic and thorough manner, which will probably make the New York collection of casts one of the best in existence. A tentative list of the casts desired was drawn up and sent to the heads of all the great museums in Europe for criticism and suggestion, and Mr. Edward Robinson, of the Boston Museum of Fine Arts, was sent over to Europe as the purchasing agent for the New York Museum.

Professor Baldwin Brown is, we notice, appealing in the Scottish newspapers for funds to provide a museum of casts from Greek sculpture for Edinburgh University.

The great height of many buildings already erected in Chicago, and the fabulous number of stories contemplated by the plans of a new Oddfellows' Temple, have brought to a point the agitation against such structures. On one day recently five permits were taken out for the erection of buildings 16 stories high, to cost in the aggregate £600,000. That evening the city council met and directed the Commissioner of Buildings to give no permits for structures exceeding 12 stories, until the question of limiting height is discussed and finally settled.

MEETINGS FOR THE ENSUING WEEK.

Monday.—Royal Institute of British Architects "American Theatres," by H Townsend 8 p.m.
Society of Arts. Cantor Lecture No. 3. "The Pigments and Vehicles of the Old Masters," by A. P. Lawrie. 8 p.m.
Leeds and Yorkshire Architectural Society. Social evening.

Tuesday.—Institution of Civil Engineers. Discussion on "The Sale of Water by Meter in Berlin." 8 p.m.

Wednesday.—Society of Engineers. Annual dinner. Holborn Restaurant. 6.15 p.m.
Society of Arts. "Typological Museums," by General Pitt-Rivers. 8 p.m.

Friday.—Architectural Association Lyric Club. Third Concert. Mona Hotel, Covent Garden. 7.30 p.m.

Mr. Gilbert J. Hunt, of the Borough Surveyor's Department, Bournemouth, was on Tuesday last elected by the Dorchester Town Council to the post of borough surveyor of that town at a salary of £200 per annum in succession to Mr. F. T. Maltby, who has been appointed to Guildford. There were 115 applicants.

The chairman of the Bristol school board formally opened on Monday the new board schools which have been erected in Cheese-lane. The schools will accommodate 639 scholars, and have been built from plans prepared by Messrs. Hansom and Bond (now Jones and Bond), architects, of Clare-street, Bristol. Cattybrook bricks, with terracotta dressings, have been employed in the construction. In the centre of the chief façade are a couple of classrooms, flanked by two gabled projections. The central hall, which is of unusually large proportions, is in the rear, the ceiling being supported by a single column, and covered in by a flat asphalted roof. Surrounding this hall are eight classrooms, with an additional large apartment for infants. The cost, including the site, will be over £11,000.

Trade News.

WAGES MOVEMENTS.

The Arbitrator's Award in the Carpenters' Strike.—In the December issue of the organ of the Amalgamated Society of Carpenters and Joiners, the secretary, Mr. F. Chandler, makes the following judicious remarks on Mr. MacVicar Anderson's award:—"Since last addressing you through the pages of the Monthly Report, the arbitrator has given his decision in respect to the claims of the London joiners, but we cannot help feeling disappointed. In acknowledging, as he did, that the conditions of London work were exceptional and different from those of any other town in the kingdom, in consequence of the great distance which workmen have to travel in order to reach their work and their homes, he omitted to mention the cost incurred each day in travelling to and from their work, and other exceptional circumstances, such as heavy house rents, dear coals, gas, &c., which clearly entitled them to an advance in wages in order to bring up the position of the joiners in London nearer to that enjoyed by our members in most of the large industrial centres of this country. The net result of the award is the establishing of a code of working rules beyond dispute, a reduction in time of 5½ hours for the 16 weeks of winter months, and 1¼ hours in the 36 weeks of summer months—all round, an average reduction from 52½ to 50 hours for the working week. While the rate of pay is unaltered, the rates for overtime are increased, the chief gain being that of 2d. per hour for the first two hours on full days, and double time from 4 p.m., instead of 5 p.m., on Saturdays. New features are the concession of 1s. a day as 'expenses' for men employed over six miles from the shop, the provision of a lock-up place for tools, and a suitable place for meals. In leaving this subject, we desire to express a hope that the arbitrator's award may be faithfully adhered to, and that in a very short time the employers may see the justice and wisdom of supplementing the same by an advance of wages."

Cambridge.—The dispute between the bricklayers of Cambridge and the large local building firms has been amicably settled, and the men resumed work on Monday. The strike has lasted for exactly five months, and has seriously affected the finances not only of the men, but of their trade union. The carpenters are still out on strike, and at present there appears to be no prospect of agreement. The strikers' funds have been augmented from time to time by concerts and entertainments of various kinds, but the non-success of the strike has had a disheartening effect on the men. The masters maintain a firm attitude.

Dunfermline.—For a considerable time past great briskness has prevailed in the building trade in Dunfermline, and there are a number of contracts on hand. In consequence of this briskness, the operative joiners have resolved to demand that their wages be advanced to 7d. per hour on 1st March next. The plasterers are to request an increase from 7d. to 7½d. per hour, and weekly instead of fortnightly payment. Masons obtained a rise in wages some time ago.

Federation of Building Trades Unions.—Steps are, it is stated, being taken to bring about a complete federation of the whole of the trades unions which are concerned in the building trades of London. For some time past a body has been in existence called the "Building Trades Committee," under the secretaryship of Mr. George Dew, and as the necessity for united action amongst all sections of the building trades has been made apparent during the late strike, a conference is shortly to be held at which proposals for combined action will be made. This points to a renewal of the struggle on the part of the building trades next year, which will throw into the shade the recent conflict between the carpenters and joiners and their employers.

Mr. William Mills, Chief Engineer of the London, Chatham, and Dover Railway from its first formation, died on Tuesday at his residence in Clapham-road in his 73rd year.

As a memorial to the Rev. S. T. Green, now rector of Charlton Church, Dover, the foundation-stone of a new church was laid at Dover on Wednesday. The church, which will be the largest in that town, has been designed by Mr. James Brooks, and £6,000 has already been raised towards the cost of the building.

A meeting of the Birmingham Association of Students of the Institution of Civil Engineers was held on Thursday evening at the Midland Institute, the president, Mr. J. Edward Willcox, A.M.I.C.E, being in the chair. A paper was read by Mr. H. Hyatt on the "Testing and Manufacture of Portland Cement," which was followed by an interesting discussion.

WATER SUPPLY AND SANITARY MATTERS.

Bexley Sewers.—The Bexley Local Board has accepted the tender of Mr. George Osenton, of Westerham, for the construction, at a cost of £6,500, of 4¾ miles of pipe sewers in St. Mary's ward, which includes the old village of Bexley. The intended sewers will discharge at several points into the West Kent main sewers, which pass through the district. The tenders for the work ranged from £5,600 to £16,700. Messrs. Alfred Williams and Son, of Westminster, are the engineers.

Oswestry.—The award of Mr. Rofe, arbitrator in the matter of dispute between the town council and Messrs. Jevons and Son, *re* the Penygweley Waterworks, was made known to the corporation on Monday. The claim of Messrs. Jevons was £12,754 3s. 9½d. The arbitrator awarded that the contractors were indebted to the corporation in the sum of £373 13s., which he directed them to pay the corporation on or before December 22, and also that they should allow before that date the corporation to take possession of the materials prepared for the puddle by the contractors. He also awarded that the contractors should be paid the sum of £108 3s. The award was accepted.

The markets committee of the Leeds corporation discussed on Tuesday a proposal to roof-in a portion of the uncovered ground lying between the entrance near the George Hotel and the Fish Market. The borough engineer (Mr. T. Hewson) laid before the committee two plans, one founded on the same principle as the roof of the new Midland Station at Bradford, and the second on that of the covered market at Newcastle-on-Tyne. After discussion, the committee resolved to adopt the first-mentioned plan, which involves an expenditure of about £4,000.

The designs of Mr. Thomas W. Cubbon, architect, of Birkenhead, have been adopted for new Wesleyan church and school buildings about to be erected at Ambleside in the English lake district. The church will seat over 400 adults, and the school has accommodation for 300 children, in addition to which extensive class-rooms are provided. The buildings are Late Gothic in character, and are faced externally with local blue stone, relieved by yellow sandstone dressings.

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TENDERS.

*** Correspondents would in all cases oblige by giving the addresses of the parties tendering—at any rate, of the accepted tender: it adds to the value of the information.

APPERLEY BRIDGE, YORKS.—For the erection of a church at Apperley Bridge, near Leeds. Messrs. Jowett, Kendall, and J. H. Bakes, M.S.A., Claverley Chambers, Victoria-square, Leeds, architects. Quantities by the architects:—
Accepted tenders—
Mason's work:—
Obank, T., and Sons, Idle £1,507 0 0
Joiner's work:—
Obank, T., and Sons, Idle 443 0 0
Plumber's and painter's work:—
Higginbotham, A., Idle 206 0 0
Plasterer's work:—
Hollings, F., Idle 91 15 0
Slater's work:—
Thornton, T. and A., Eccleshill ... 123 18 0
Total amount, £2,371 13s.

BISHOPS HULL, SOMERSET.—For building new schools, master's residence, boundary walls, &c., for the Bishops Hull School Board. Mr. George C. Strawbridge, Taunton, architect:—

Morse, J.	£2,375 0 0
Spiller, H. J.	2,360 0 0
Sloman, W.	2,300 0 0
Derham, S.	2,150 0 0
Harrison, W.	2,075 0 0
Mountsephent, J.	1,985 0 0
Rendell and Son (accepted) ...	1,949 0 0
Spiller, A. J.	1,940 0 0

BRISTOL.—For cleansing, and watering, and removing ashes throughout the district, for the city council, during one year:—
Shellard, J. and E., Bristol* ... £20,030 0 0
* Accepted.

BRISTOL.—For paving Redcliff street with wood, for the city council:—
Wilkins, G. H. (accepted) £2,556 2 9

CARDIFF.—For alterations and additions to the Royal Oak hotel. Mr. C. C. Jones, Cardiff, architect:—
Lewis, Cardiff (accepted provisionally).

DUNDEE.—For completing the duplication of the Lintrathen water main, by laying a second pipe between Pitnappie and Dundee, for the Dundee Water Commissioners:—
Accepted tenders:—
Cast-iron pipes:—
Stewart, D. Y., & Co., Glasgow ... £18,183 0 0
Excavating work and pipe laying:—
Mackay, G., and Sons, Dundee ... 6,999 19 8
Valves:—
The Glenfield Co., Kilmarnock ... 181 0 0
Total, £25,364 0s. 8d.

DUNSTABLE.—For alterations to the North-Western Brewery, for Mr. B. Bennett. Mr. W. J. Pearson, Market-hill, Luton, architect:—

Cheshire, J.	£217 10 0
White, G. H.	178 0 0
Robinson, J.	161 0 0

EBBW VALE.—For alterations and additions to Catholic Schools, for Rev. F. Fritz. Mr. C. C. Jones, Cardiff, architect:—
Davis, Ebbw Vale (accepted).

HALIFAX.—Two villas, stable, greenhouse, gates, and boundary-walling, Francis-street, Halifax. Mr. T. Lister Patchett, Halifax, architect:—
Accepted tenders.
Excavator, mason, and bricklayer:—
Naylor, Edwin.
Carpenters and joiners:—
Greenwood, F., and Son.
Slaters and plasterers:—
Blackburn and Davenport.
Plumbers and glaziers:—
Sutcliffe, W., and Son.
Electric lighting and bells:—
Sunderland, J., and Co.
All of Halifax.

HALIFAX.—For the execution of various work in connection with the new arcade and shops, for the Corporation. Messrs. Leeming and Leeming, of London, architects:—
Carpenter's and joiner's work:—
Townsend, G., and Son (accepted) £2,940 0 0
[Previously accepted tender from Fielding and Bottomley, withdrawn.]
Excavator's, mason's, and bricklayer's works:—
Birkby and Sons, Wyke (accepted) £6,520 0 0
[Previously accepted tender from Charnock and Sons, withdrawn.]

HALIFAX.—For constructing an intercepting sewer in Queen's-road, for the corporation:—
Tyson, G. and H. (accepted) ... £2,919 0 0

HIGH BROOMS, TUNBRIDGE WELLS.—For the erection of a licensed house for Messrs. Jude, Hanbury, and Co:—
Strange and Co. (accepted) ... £1,711 0 0

LIVERPOOL.—For laying electric mains to the Walker Art gallery, for the city council:—
Liverpool Electric Supply Co. (accepted) £80 0 0

LIVERPOOL.—For supplying and fixing new gates to the Haymarket extension, for the city council:—
Raffle and Campbell (accepted) ... £75 10 0

LONDON.—For two iron escape staircases at the Industrial Schools, Plashet, Upton Park, E., for the guardians of the parish of St George-in-the-East. Messrs. Wilson, Son, and Aldwinckle, 1, Victoria-street, S.W., architects:—

Holland, J.	£269 0 0
Nightingale, B. E.	255 0 0
St. Pancras Ironworks Co.	217 0 0
East Surrey Iron Works	197 10 0
Constructional Ironwork Co. ...	177 0 0
Cole, F. W. (accepted)	159 10 0

LONDON.—For alterations to basement of No. 64, Oxford-street, W., for Messrs. G. Rowney and Co. Mr. W. J. Ebbetts, F.R.I.B.A., Savoy House, 115, Strand, W.C, architect:—

Smith, W.	£141 0 0
Baylis, H. (accepted)	135 15 0

LONDON.—For rebuilding No. 26, Finsbury-square, E.C., and other works in connection with the enlargement of Buecker's hotel, for Mr. G. Hohly. Mr. J. Groom, 1, Broad-street Buildings, Liverpool-street, E.C., architect. Quantities by Mr. H. Theobald, F.S.I., 87, Finsbury-pavement, E.C.:—

Woodward and Co.	£3,573 0 0
Gregar, W., and Son	3,567 0 0
Lawrence, E., and Sons	3,437 0 0
Stimpson and Co.	3,360 0 0
Mattock Bros.	3,133 0 0
Holloway, H. L., Deptford* ...	2,973 0 0

*Reduced estimate accepted, £2,820.

LOWESTOFT.—For new premises for Mr. E. Lawrence, fish merchant:—
Newson, W. (accepted).

LUTON.—For the erection of new medical institute, doctor's residence, stabling, &c., Waller-street, for the trustees. Mr. W. J. Pearson, Market-hill, Luton, architect:—

Saunders, J.	£2,916 6 0
Smart, G.	2,800 0 0
Parkins, D.	2,798 0 0
Pryer, G.	2,780 0 0
Dunham, G.	2,760 0 0
Wright, C.	2,547 0 0
Kingham, G.	2,534 0 0
Neville, T. and E. (accepted) ...	2,386 0 0

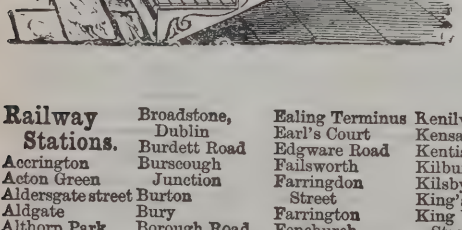
LUTON.—For two residences, London-road, for Mr. J. T. Needham. Mr. W. J. Pearson, Market-hill, Luton, architect:—
Neville, T. and E. £900 0 0

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Bowdon Central
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Crooked Billet Level Crossing
Cross Lane
Crumpsall
Cullercoates
Cannon Street
Dalston
Daubhill
Daybrook
Denholme
Derby
Droylesden
Drighlington
Dudley
Dudley Port
Dundee
Ealing Common
Ealing Terminus
Earl's Court
Edgware Road
Failsworth
Farringdon Street
Farrington
Fenchurch Street
Finchley Road
Firsby
Forest Gate
Forest Road
Level Crossing
Fulham
Geedley
Gloucester Road
Gower Street
Grantham
Greenwich
Hackney
Haggerston
Hammersmith
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Highbury
Highdran Road, Wallsend
Hollinwood
Holyhead
Homerton
Horley
Hounslow
Hounslow Barracks
Keighley
Kemble Junction
Kenilworth
Kensal Green
Kentish Town
Kilburn
Kilsby
King's Cross
King William Street
Langley Green
Latimer Road
Lea Bridge
Leamington
Leman Street
Leyland
Leyton
Leytonstone
Lichfield
Limehouse
Lincoln
Little Ealing
Liverpool Road, Manchester
Liverpool Street
Llandudno
Long Buckby
Loudoun Road
Ludgate Hill
Mark Lane
Maidstone
Manchester
Manchester, Exchange
Manchester Road
Mansion House
Mildmay Park
Millhill
Milverton
Monkwearmouth
Moorgate Street
Monument
Newcastle-under-Lyme
New Cross
Newport
Newton Heath
North Brentford
North Bridge
Northampton (Castle Station)
Nottingham
Oldbury
Old Ford
Oldham (Mumps)
Paddington
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Patricroft
Penzance
Pickle Bridge
Plaistow
Pleck
Plymouth
Poplar
Portsmouth
Prestwich
Radcliffe
Roade
Salisbury Road
Seething Lane
Shadwell
Sheffield
Shoreditch
Sloane Square
Snow Hill, Birmingham
Slough
Soho
South Bromley
South Kensington
Southport
Speke
Spring Grove
Stechford
Stepney
Stoke
Stourbridge
Stratford
Stretford
Sudbury
Sunderland
Sutton
Sutton Coldfield
Temple
Thornton
Torquay
Tower of London
Tring
Tynemouth
Upton Park
Victoria
Victoria Park
Walham Green
Wallsend
Walsall
Waterloo, Liverpool
Weaste
Werneth, Oldham
Westbourne Park
West End Lane
Westminster
Whitchurch
Whitechapel
Whitefield
Whitley
Widnes
Willenhall
Bridge
Willesden
Wood Green
Wormwood Scrubbs
Worsley
Wolverhampton
Wolverton

Barracks.
Aldershot
Ashton-under-Lyne
Barnet
Belfast
Budbrook
Burnley
Caterham
Chatham
Chester
Coventry
Curragh Camp
Dublin, Beggar's Bush
Dublin, Island Bridge
Dublin, Ship Street
Dublin Royal Barracks
Dundalk
Dublin Castle Police Barracks
Eastney
Fleetwood
Fulwood
Halifax
Hamilton, Glasgow
Hulme
Knightsbridge
Leicester, Glen Parva
Manchester
Newbridge
Newcastle-on-Tyne
Normanton
Northampton
Norwich
Portsea
Portsmouth
Preston
Regent's Park
Salford
Shorncliffe
Trim
Warley
Winchester
Woolwich
Wrexham

Schools, &c.
Belfast Methodist College
Battersea, St. Mary's Church
Birmingham, Cowper Street
Clapham
Colchester
Forest Gate
Hanway Place
Harrow
Haverstock Hill Orphan Working School
Jamaica Level
Leyton, Grammar School
Leyton, Church Road
Newhaven
North Bow
Old Ford
Poplar, Byron & Bright Streets
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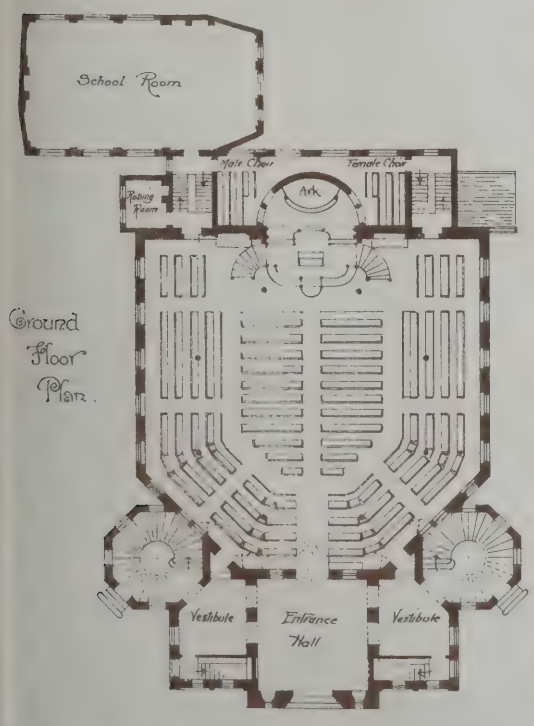

North side Nave
Halberstadt
Cathedral



Elevation to West End Lane.

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Ground Floor Plan.



Interior view towards Ark.

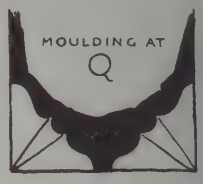
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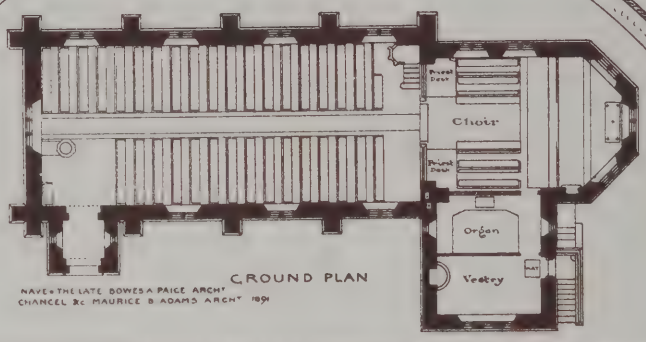
S. MARGARET'S CHURCH BLACKWOOD MON.

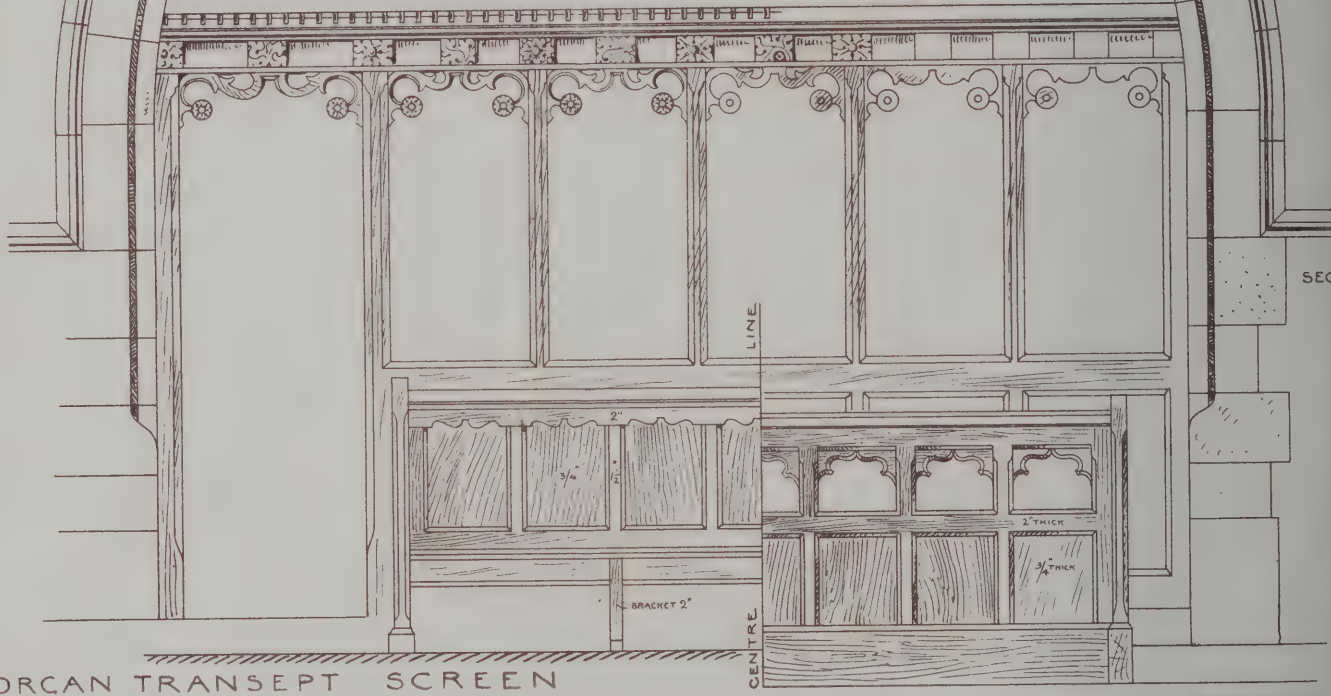
CHANCEL DETAILS

MAURICE B ADAMS F.R.I.B.A.
ARCHITECT

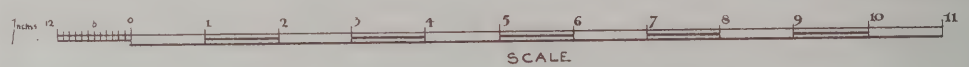


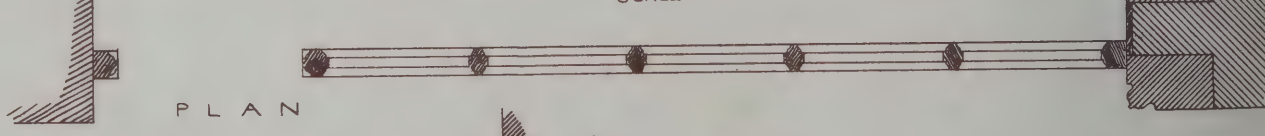




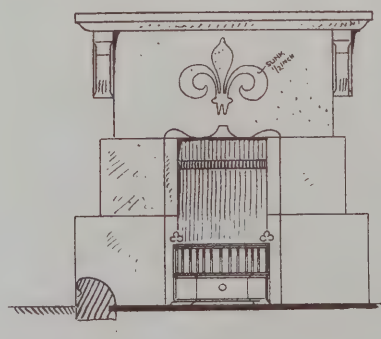


ORGAN TRANSEPT SCREEN

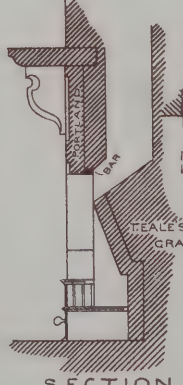




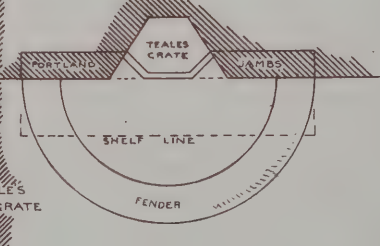
PLAN



FRONT

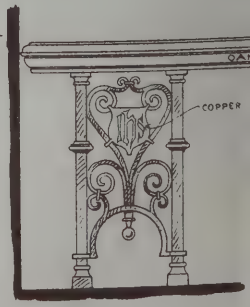


SECTION



FIRE PLACE IN VESTRY

PLAN



ALTAR RAIL

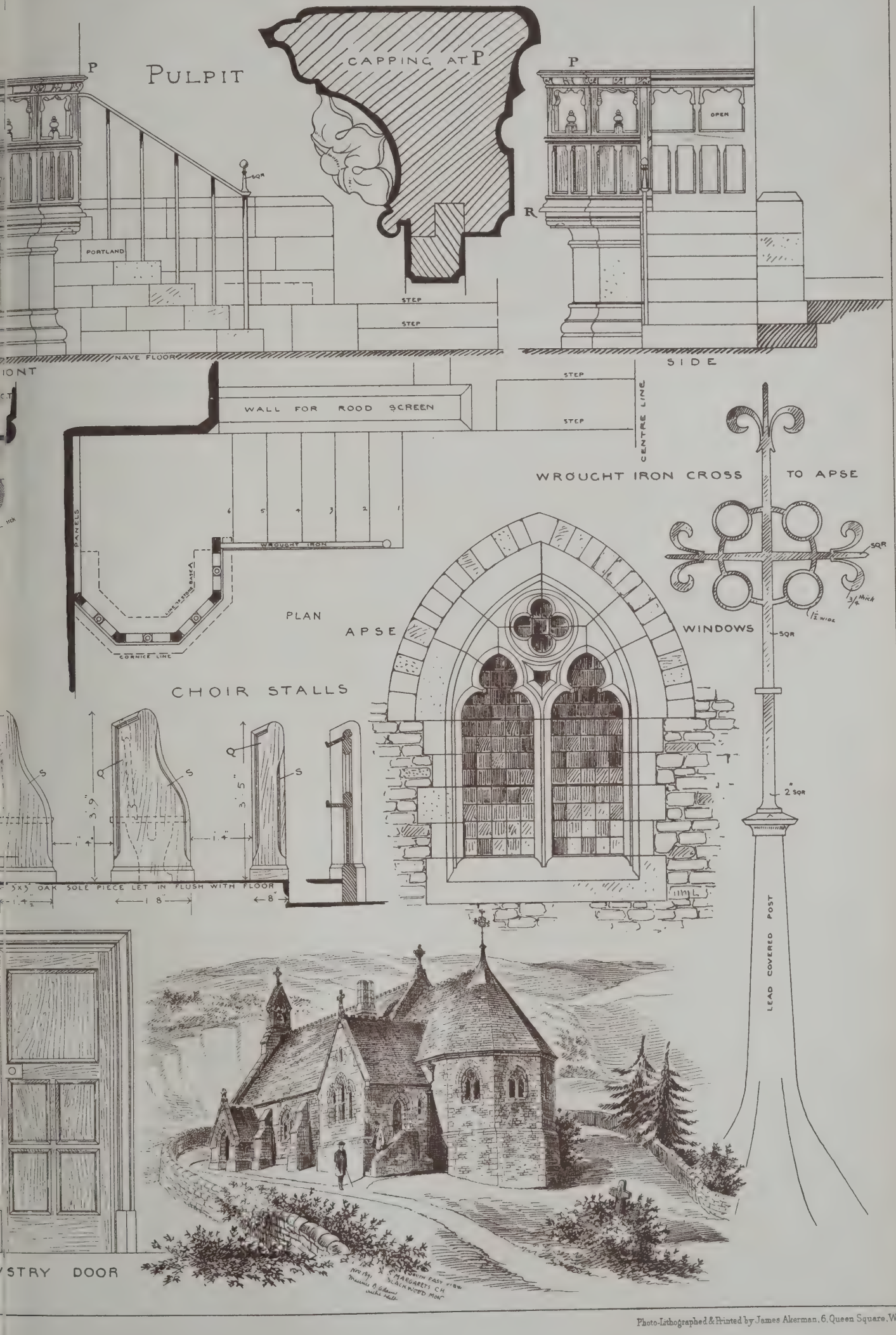


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BATTERSEA TOWN

E.W. MOUN



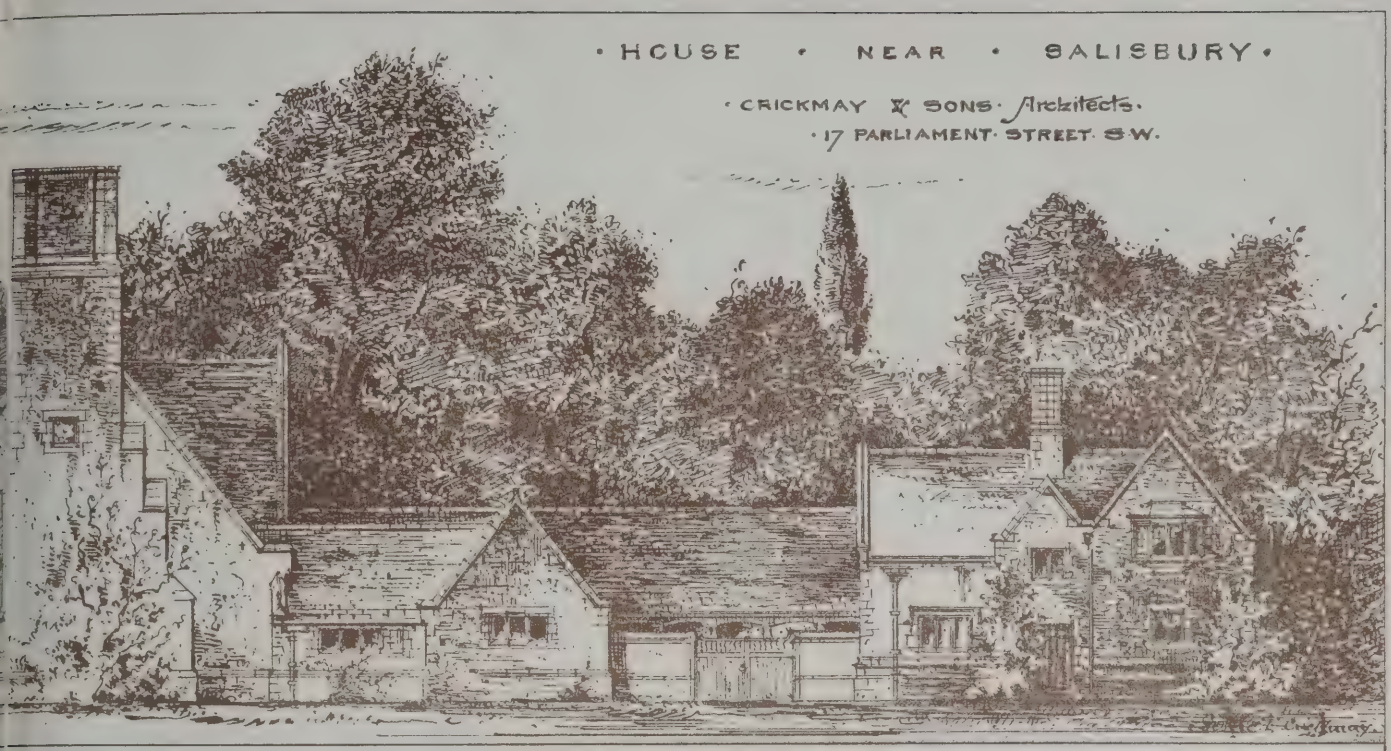
"PHOTO-TINT," by James Akerman, 6, Queen Square, London, W.C.

SELECTED DESIGN.

RCHITECT.









"PHOTO-TINT" by James Akerman, 6, Queen Square, London, W.C.

THE BUILDING NEWS
AND ENGINEERING JOURNAL.
VOL. LXI.—No. 1928.
FRIDAY, DECEMBER 18, 1891.

BATH MUNICIPAL BUILDINGS COMPETITION.

ACTING upon the recommendation of Mr. W. Young, F.R.I.B.A., the assessor, the City Council of Bath have awarded the three premiums of £100, £75, and £50 respectively to Mr. J. M. Brydon, of London, for his design marked "Adelphi"; to Messrs. Burgess and Oliver for design "Lex"; and to Mr. T. B. Silcock, of Bath, for design marked "Wood." As to this selection opinions vary, as may be inferred from the remarks and debate which followed the reading of the report of the Municipal Buildings Committee at the meeting held last Friday. Owing to the fact that a considerable portion of the design facing the High-street is an incorporation of the old Guildhall as a central feature, the composition, as an architectural whole, lacks almost necessarily one of the chief conditions of a successful design. The requirement of retaining the old building as a centre has materially restricted the architect's freedom: it imposed the necessity of making the new wings agree in character with the present building, and it also struck the keynote of the entire façade and its fenestral arrangement. A further drawback to success is the rather acute angle between High-street and Orange-grove, which a large number of the competitors, including Mr. Brydon, has followed upon the line laid down in the plan of sites. This plan showed a bold curve or quadrant connecting the High-street with the Orange-grove frontages. Many of the designs adhere to this line as if no improvement were possible, while a few adopt the more architectural arrangement of making the angle at the corner square by setting the building a little within the line as in the cases of "Lex," "Three Horse-shoes," and "Progress." The great length of the main façade of the new structure which, including the Guildhall and art gallery, will be about 340ft., makes it important to break up the front by variations in the heights of the new wings and by projections or recesses in the frontage. These considerations are, we think, important in the choice of a design for a prominent site, like that selected, so close to the Abbey church. The six designs chosen by the assessor for consideration included "Adelphi" "Lex," "Wood," the three premiated designs—and "Simplicity of Plan," "Progress," and "Guildhall," and we will first make remarks on these. Two main departments had to be provided, the Municipal and Police, with their attendant rooms.

"Adelphi," by Mr. J. M. Brydon, has the merit of complying with the conditions in many particulars. The new wings are well planned; the corridors along both blocks are arranged at right angles instead of obliquely. These are well lighted at the ends and by side areas. At the angle of corridors is a spacious hall, with staircase, for municipal purposes, approached by the entrance-hall at the corner of High-street and Orange-grove. The author's endeavour to "infuse the spirit of the old work into the new" has been fairly attained, and, as the assessor observes, the elevations are quiet and dignified, and in harmony with the Guildhall front, the ordinances and wings of which have been repeated in the square blocks which terminate the two elevations at the quadrantal corner. The whole façade to the High-street, including the art galleries' wing on the north side of Guildhall, is simple and devoid of expensive detail. The author joins two rather low recessed wings of five window bays to the old front; at each end of these he repeats the plain astylar portion of the old building, but surmounts them by octagonal cupolas, a rather awkward-shaped quadrant (having an upper order of three-quarter columns repeating the old columnar part of the Guildhall) forming the corner at each end. The corner square towers and quadrants agree in level with the cornice and parapet of the Guildhall. This arrangement produces a somewhat abrupt termination in the main façade, which is partly mitigated by the cupolas which accent the corner ends. In the Orange-grove front the elevation is well managed. A low cupola, or domical roof, is added to the centre of Guildhall, which certainly adds to its importance, and counteracts the greater height of the new wings. Referring to the plans, the author places the new court and council chamber at the back, so as to avoid the noise of traffic; the police-court, on ground floor, 42ft. by 32ft., is approached by front and side corridor, and is lighted in rear. Along the front, next to Guildhall, are arranged in order the female witnesses' room, a short corridor for light, male witnesses', justice clerks', and solicitors' rooms; these occupy the whole wing up to the corner. The Orange-grove return has the barristers' retiring room, near hall, and the city engineer's offices, lighted in front and towards the area. The old sessions court is retained, the new court is near it, separated only by the jury and magistrates' room. The old principal staircase remains, and gives access to the council chamber on the upper floor. In the plan of first floor the author has skilfully connected the new council corridor, which is top-lighted, to the old banqueting-hall by a circular domed lantern, and vestibule with ante-room between hall and council chamber. On the street side of this corridor is the mayor's parlour, 26ft. 6in. by 17ft. 6in., and a committee-room, 27ft. by 17ft. 6in. The whole circular corner and its wings is devoted to the town clerk, whose offices are conveniently placed near the new municipal staircase of the corner; the shape of the clerk's general office forms a quadrant, the inner angle having an entrance and counter. The return wing is devoted to the treasurer's offices. The public entrance and stairs at this end of corridor near the new road to Market, gives access to the galleries of Court and Council Chamber, and the lavatories near are convenient. The second floor contains spare rooms, and in basement are the office of inspector of weights and measures, heating-chamber, and spare rooms. An underground passage is shown between police offices and new buildings. The sections of this design show circular ends to council chamber with segmental ceiling, and air-pump ventilator over. One detail to which objection may be made is the great height of sham walling and parapets to the front elevation, which is not less than 12ft. This expedient was apparently adopted to give height to the new wing, but it is not desirable, and might have been avoided by a higher roof. The sculptured frieze in the quadrant looks rather out of place. In the Conditions, a lift was to be provided from kitchen in basement to first floor, for dinners in the banqueting room, but this has been omitted. It would have been better if the treasurer's department had been on the ground floor. The estimate is £22,500, including heating and ventilation.

"Lex," by Messrs. Burgess and Oliver, is one of the four designs which has shown a square-setting back at the corner, and a more architectural treatment of the return front; the loggia quadrants to the angle block facing Orange-grove, and the well-massed corners are ageeable. The magistrate's court, 38ft. by 30ft., is next the old Guildhall in the rear, approached by front corridor, with judge's and magistrate's retiring room next it. The justices', clerks', barrister, and solicitor's room are on the street front. The return corridor gives access to the sessions court, 45ft. by 34ft. at the end of Orange-grove, with a jury room at the end which is semicircular, and covered with a half dome, which makes a good feature. The public entrance to court is on the Grove side, with witnesses' room near. The main entrance is at the end of High-street, next the corner, and in a line with return corridor. The square arrangement of the walls and corridor, and the lighting are satisfactory. On the first floor is the council chamber, 53ft. by 30ft., over the magistrate's court, with retiring room. In front are the mayor's private room and town-clerk's offices. The second floor has the engineer's offices; the basement, the weights and measures testing rooms and surveyor's clerks in front. The plan thus provides for two new courts, the old sessions court being converted into treasurer's offices; but the connection between old and new buildings, and the lighting of front corridor, are imperfect. The old staircase is kept, and leads to the council chamber above; but we find no separate entrance to the magistrates' court, or to the council chamber over. The engineers' offices on the second floor are rather inconvenient for access. Another objectionable point of plan is the location of the lavatories and w.c.'s at the main corner. The author has not preserved so scrupulously the style of the old work, but has designed his elevations with more individuality. The cost is estimated at £20,000, assuming a price per cubic foot of 10d. from the top of concrete. Mr. Young estimates the design at £22,500.

"Wood" (otherwise "Beau Nash") by T. B. Silcock, has a well-managed corner entrance by a quadrantal portico, with spacious hall, top-lighted and galleried on upper floor level to main corridor, and divided by columns into three avenues, giving access to public court, 45ft. by 32ft., in rear, with jury and magistrates' rooms at the end next Guildhall. In front of corridor are justice clerks', solicitors', and barristers' rooms. The treasurer's offices, cloak, and inquiry rooms are in the Orange-grove side. The first-floor plan shows the council-chamber over the court, 45ft. by 32ft., having apsidal bay for mayor's parlour and town clerk's rooms along the High-street front. The author retains the old staircase. The lighting of the front corridor is scarcely sufficient, but the large inner hall admits direct light from the top. The second floor gives accommodation to the city architect in front and surveyor in side wing. A lantern roof is shown over council-chamber and hall. The elevation shows corner blocks of same height as Guildhall, with order of engaged columns on a basement. The centre and corner blocks are connected by low buildings of Italian character, but the skyline of masses is level and unrelieved. Emblematical groups of figure sculpture are placed on the angles. Elaborate detail is shown in two clever sepia sketches of staircase and public hall, which latter is two orders in height, and the author proposes marble and carving in the latter. The estimate given is £24,353. The author has made a few good points. He has taken advantage of the fall of ground at Orange-grove end, to give direct access to basement as well as ground floor. The quadrant-shaped portico, with three wide arches between Doric columns, is skilfully joined to the circular-ended hall, lighted by a domed lantern, with gallery on first-floor level, which hall would make a grand centre, though rather costly. The staircase to first-floor landing on each side of entrance is skilfully managed. A passenger lift adjoining porters' room connects all the floors, the workmen's entrance is useful, and the police-court and council chamber are well

placed with the necessary rooms and offices in connection. The fittings to the court are well planned, and the junction between old and new buildings skilful. The author has kept in view the traditions of Bath architecture, and the style of the two Woods, with its quiet, Classical feeling, has been preserved. The lower story is quite plain, while the upper story of the new wings and quadrant is adorned by an order of three-quarter columns, with square-headed windows, a cleverly-drawn detail of which is exhibited. The low-connecting blocks shown on the plans we reproduce are pleasing breaks.

"Progress" has also a right-angled return with an octagonal hall at the corner. The front elevation is columnar, joined to the old building by a low screen or corridor. The ground-plan comprises magistrate's, witnesses', barristers', and solicitors' rooms in the Orange-grove block, and a sessions court near old building. There is a spacious rectangular staircase and hall at the corner of corridors. On the upper floor is the council chamber adjoining the banqueting hall, with semicircular seats, entered by a wide front corridor well lighted from the street; the town clerk's offices are on the Grove front, with treasurer at one end, and a mayor's parlour in the octagon corner. The corner is surmounted by a kind of double dome. The city engineer occupies the octagon room and side wing on top floor. "Simplicity of Plan and Harmony of Elevation," shown by two schemes, has the usual quadrant corner, rather abrupt in curve. The judicial rooms are in front; two entrances on quadrant, one for public to police-court, and the other to offices, are shown. The corridors are awkward at their junction with lobby. The police-court is in rear of front block, next the old court, and the city engineer's and treasurer's offices are placed at the end of return wing. The first floor has council chamber over the court, with mayor's, committee, and retiring rooms in front, the town clerk being relegated to the Grove block. The elevation is skilfully grouped at the corner, the quadrant stopping against projecting blocks of tetrastyle design, with a flat cupola at the intersection. The connecting wings are low, and have recesses or loggias with columns, and a sculptured figure frieze is introduced in the fronts. "Guildhall" has also a circular corner, which is occupied by the police-court. The justices' clerks and staircase hall in front, with witnesses' and barristers', &c., rooms behind corridor, and engineer and treasurer in side wing. The corridors appear deficiently lighted—a fault common to many others. The upper floor has the council chamber over the court at the corner, with the mayor's rooms in front and the town-clerk in side wings. The elevation shows the Guildhall flanked by towers and cupolas. The author repeats the Guildhall façade in the side wings, making three blocks; the circular corner has an order of columns engaged.

We can only briefly refer to the remaining designs, and amongst them the design with motto "Three Horseshoes," by Major Davis, the city architect of Bath, deserves a more prominent position than has been given it for merits of plan and elevation. To avoid the unsightly curve and angle, which has been so generally followed, the author has returned his building at right angles for some distance, and introduced between the two façades at the corner a semi-octagonal entrance hall containing the main staircase, which is carried up and terminated by a cupola. The art-gallery wing is also treated in the same manner. The main façade joining the present Guildhall is set back from that building; but there is a bold return at the octagon tower at each side. The line of building in the rear is also varied. From the east angle of Orange-grove front the building returns at right angles, giving a larger area for the offices and courts. The High-street façade is well broken by low wings on each side of old building, and the arrangement of breaks in the upper story of front, with arched rustication below, relieved by coupled insulated columns forming the piers, is simple, and harmoniously connects the old and new parts. The elevation and details shown in the perspective do inadequate justice to the design. The author provides a new sessions court near the old building, and converts the present sessions court into judicial and town clerk's offices—a very desirable arrangement to our mind. A spacious portico entrance and vestibule on the approach road to market gives a useful access to the quarter-sessions court and gallery of petty sessions, each having its own corridor. The former court is at the east end of Orange-grove, 41ft. 6in. by 31ft., well lighted to the Grove, with accommodation for the grand jury and the petty jury, and a registrar's room for undefended cases. The witnesses' waiting and jury rooms are well placed, lighted by an area; and along the front corridor are the rooms for magistrate, solicitors, barristers, and recorder. The council chamber is over the petty sessions court, well lighted by clerestory windows above corridor, with waiting-room, serving-room, lavatory. Near the council room, and fronting High-street, are robing-room and city engineer's offices, the return block being given to the treasurer. A gallery is shown over the waiting-room of the council chamber. The author has kept within the boundary-line of plan, instead of encroaching beyond it, as in the second premiated plan. "Queen Elizabeth," a well-drawn set of plans, has a canted corner, with pediment and lofty tower over. The new wings have cupolas, and the style of the old building is fairly preserved, if we except the arched entrance to market, with corresponding blank arch on other side of Guildhall, which joins the wings to that building. The council chamber on first floor is placed lengthwise with High-street front, and lighted therefrom, and has an apsidal end; the police-court, on ground floor, is near the present Sessions Court, with Justice's room between. "Bath Tradition" is quietly treated. The upper story of wings has an order of columns, and these are joined to square ends, which repeat the old building, and of same height. On the Grove side is a pedimental block, and the corner is square and broken. The police-court and council-chamber block faces the Grove. The plan of corridors and rooms is well studied. "Fortuna" has a clever sepia perspective, but rather too broken and redundant at the corner. A circular entrance hall between the façades, surmounted by a cupola, is a feature. The front wings are broken in outline, and are overpowered by the Guildhall, and the block of court and council chamber which rises to the same level. The circular corner and its abutting blocks are arranged like a "rule-joint." "Bonâ Fide" is too Italian: the round-arched windows of new façades do not harmonise with the Classic simplicity of the present Guildhall. The circular corner is composed of three arches abutting against square columnar blocks on each front, leading to a large hall at angle of corridors with staircase in the axis of angle. The court and council chamber are placed in the order usually adopted, and there is some skill shown in the arrangement. "Plan" has the wings connected to present building by wide arches, one forming approach to market, and with corner turrets added to Guildhall carried up as cupolas. The style of the new building hardly agrees with the old. The junction of quadrant and Grove front is abrupt, and the rooms are cut obliquely. "In Unison."—There are three pediments towards the High-street, with circular corner and pediment on return front. The council chamber is in front on first floor. "Adan" has an elevation showing low wings and dissimilar fenestration from the pres building; the pilasters are out of sca and the author encroaches in making pr jections at angles of Guildhall. The circul corner looks abrupt. The new court is rear of Grove wing, and low roofed, and t council chamber faces the High-street, first floor. "Prince Bladud" flanks Guil hall by lofty towers; the niches for statu between windows of town clerk and mayo rooms at corner look out of place. The pl is weak, with council chamber at end Grove wing. "Mind and Work" is faul in the lighting of corridors. The lines elevation continue the same level as the of the present buildings, with recess columnar wings stopping against squa towers pronounced by cupolas. The borou court faces Orange-grove, and is pediment "Tradition of Bath," "Touchstone," a "Cross in Circle" are below par.

It is a pity the committee intrusted wi this competition had not made up the minds as to what were essential point instead of having been obliged to modi the Conditions. The question as to bounda has been differently understood: some ha adopted a "give-and-take" line, wh others have kept within the lines of t block plan. Some have gone up to t limits of new entrance to market, wh others have adopted the boundary show Other differences of interpretation are four in respect of accommodation to be provid in the basement. A well-considered set conditions should render any further info mation unnecessary. The line of corn adopted, and the angle of return, are unfo tunate for the architectural treatment; a a more satisfactory plan would have been have left competitors free to make a righ angle return towards Orange-grove.

GOLD MEDAL AND OTHER PRIZ WORKS AT THE ROYAL ACADEMY

THE erudite and interesting address d livered by Sir Frederick Leighto P.R.A., on the occasion of presenting t gold medals and other awards at the Roy Academy last week will be found report in another part of our issue to-day. T following is a complete list of the prizes a prize winners:—

Historical painting, gold medal and tr velling studentship (£200), Ralph Peaco Landscape painting, Turner gold medal a scholarship (£50), Francis Joseph Mackenz Landscape painting, Creswick prize (£3 Emily Louisa Long. Painting of a figu from the life (open to male students onl silver medal, 1st, George Spencer Watso silver medal, 2nd, Reginald Arthur. Pai ing of a head from the life, silver med 1st, Henry Lawrence Dell; silver medal, 2 Gerald Edward Moira. Painting of a drap figure (open to female students only), silv medal, 1st, Helena Maria Swaffield. Carto of a draped figure, silver medal and pr (£25), Herbert Arthur Horwitz. Design monochrome for a figure picture, Armita prizes 1st (£30), and bronze medal, P Raphael Montford; 2nd, (£10), Marion Cla son. Design for the decoration of a porti of a public building, prize (£40), P Raphael Montford. Set of six drawings a figure from the life (open to male stude only), 1st prize (£50) and silver med George Spencer Watson; 2nd, (£25), Fran Joseph Mackenzie; 3rd (£15), Lawre Edward Koe; 4th (£10), Gerald Edw Moira. Drawing of a head from the life, sil medal, 1st, Lewis Christopher E. Baum silver medal, 2nd, Katherine Mary Wil Drawing of a statue or group, silver med 1st, Katharine Mary Willis; silver me 2nd, Evelyn Caroline E. Pyke-Nott. Co position in sculpture, gold medal

velling studentship (£200), Paul Raphael ntford. Set of three models of a figure m the life, 1st prize (£50) and silver medal, drea C. Lucchesi; 2nd prize (£20), Paul phael Montford. Model of a design, 1st ze (£30), Andrea C. Lucchesi; 2nd prize 10), Paul Raphael Montford. Model of a st from the life (open to female students ly), silver medal, 1st, Jane Adye Ram; ver medal, 2nd, Edith Bateson. Model of statue or group, silver medal, 1st Edith teson. Design in architecture, gold medal d travelling studentship (£200), Alfred nry Hart. Set of architectural drawgs, silver medal, 1st, Francis Edward ard. Set of architectural designs (upper ool), prize (£25), Alfred James Edwards. t of drawings of an architectural design wer school), prize (£10), Henry Ernest rby. Plan of a building, prize (£10), nry Ernest Kirby. The Landseer Scholarps in painting and sculpture, of £40 a ar each, tenable for two years, given for best work done in the examination for ssing into the second term of studentship, re awarded, in painting, to Gerard Edward ira, and in sculpture to Paul Raphael ntford.

We are glad to note a very considerable provement in the architectural students rk this year at Burlington House, although this remark really only applies the designs and drawings contributed those students who competed for the ld medal. We understand that this mingly partial improvement is due to fact that much of the class work was qualified from competition for the prizes, account of many students having failed attend the required number of times ring the year. Hitherto, the rules in this pect have been very stringent, and the ndard of attendances has been so high, that ly exceptionally favoured students were le to comply with the regulations. This quirement has recently been qualified so to be better adapted to pupils having nerally some other engagements. With gard to the designs submitted for the gold dal, it is clear that the best men of the ar have wisely concentrated their chief orts in this competition. The subject was a town mansion, situated on a wide, roomy e, and the requirements stipulated that cial accommodation should be provided the reception rooms of the house for the per display of sculpture, paintings, and rks of art. The idea was a favourite one the late Mr. Edwin Long's, and the aim he d in view was the erection of mansions the rich, in which large pictures could be equately seen, other than in galleries cially devoted to the purpose. Few of e competitors have realised this intention, ing that in some of the best dens much of the available space is upied by galleries intended to be apart for sculpture and paintings, ereas the provisions should have been de in the chief apartments of the dwellg. This, to some extent, accounts for the oice, which has been made in awarding e prize to Mr. A. H. Hart, who, perhaps, the only competitor who has followed the structions in this leading particular. The tely dignity of his plan is commendable, ough the entrance hall looks as if it would cessarily be dark, and the most does not pear to have been made of the interior rt. In elevation the composition is highly nate, in a Belgian style of the Renaissance, ving built up elaborately treated dormers rmounting the side pavilions, so to speak, the elevation. A heavy oriel projects in tween over a semicircular entrance portal, d above this, below the eaves, is an arched ess, increasing a restlessness of effect. assive balconies project over the groundor semicircular arched windows right and t of the entry, and large mullioned ndows above afford ample light to the main rooms. The columns dividing the fenestration of the two main floors are of varied height, differing so greatly as to suggest an absence of scale, an effect which is intensified by the overbearing weight of the heavily-treated main cornice. The Greek-like refinement, too, of the figure sculpture in the panels over the first floor windows adds to this absence of harmonious treatment. The composition looks better in elevation, and on the whole certainly deserves commendation both for good drawing and skill in design, though the success which marks the work is marred in the way we have indicated. The set of plans distinguished by No. 249 may be said to more nearly accord with our ideas of what a new town mansion should be like than the prize design, but then the author has devoted too much space to mere gallery accommodation, which in this case is an objection fatal to his success. The hall is well lighted, and on one side of the internal court a conservatory is very prettily treated. The plan generally is eminently picturesque, with original and admirable architectural detail, somewhat French in feeling in the elevation of the quadrangle. Much of this work in reality would, however, be hidden from view. The front elevation is broadly treated in a manner made familiar by Mr. Ernest George. The ornamentation is well concentrated, and being confined to the central part of the façade is set off to advantage by the wide, simple bays in the side pavilions, over which are Belgian-like gables flatly treated. The central porch scarcely harmonises with the rest of the front, and over it is a clever loggia treatment in two stages. We understand the author of this design is Mr. Alexander Mackintosh. "Royal, Rich and Wide" is the motto of the next design, No. 248, shown by a well-tinted sepia perspective and outline elevations. A long open court marks the plan, which has several points of merit. The elevation is rather ponderous composition in a Classical mode with a florid frieze somewhat overelaborated with swags, but rich in effect. Between the tall windows of the first floor are a series of niches with full-length statues, and the whole façade is crowned with a handsome cornice surmounted by a hipped roof broken by square dormers. The porch projects too much, and the columns at its angles are characterless and ineffective. Taken as a whole, the design shows the power of commendable reserve. No. 247 is a commonplace design, reminding one of the new building for the College of Preceptors in Bloomsbury-square. The plan is of a regulation type, and the hall is evidently a dark arrangement. Over the centre is a high mansard roof, with a florid cresting. No. 246.—This design has two courts, and is a very picturesque arrangement, both on plan and in elevation. Here the solids and voids are boldly conceived and well balanced, but lacking in harmony of parts. A wide sprawling gable crowns the centre, and two tall fantastic lead-covered turrets flank the recessed part in the middle of the front, and terminate two quasi towers at the ends. Tall bay windows light the main rooms. The ground floor is furnished with a long range of small lights, quite out of accord with the rest of the front, and the entrance door is heavy and ugly. Design No. 250 has a low, wide Dutch-like façade, better adapted to a suburban site, or for a thoroughfare like Fitz John's-avenue at Hampstead. The interior is in no way suggested by the front elevation, which is more fitted to a ladies' school. Inside the hall is over-columned, and much room is wasted on a large interior court. The apartments, too, are small compared with the other designs. The view is cleverly delineated in outline, tinted with Indian ink, and the author is Mr. Charles Spooner. There are two other designs which call for no particular remark. Only one set of drawings were sent in for the Silver Medal for measured drawings. The subject represents Cockerell's Hanover Church, in Regent-street, and is shown by a careful series of drawings by Mr. F. E. Ward. Mr. Paul Raphael Montford wins not only the Gold Medal for sculpture this year, but four other prizes. His prize design for the decoration of a public building is, without doubt, the best among the six submitted. The subject chosen is "St. Augustine preaching Christianity in England," and the large cartoon accompanying the general coloured design represents one of the subsidary figures, and not the great preacher himself. As a composition the design has much merit, but, historically speaking, the detail will scarcely bear examination. King Ethelbert and Queen Bertha are seated in an Italian-like piazza to the left of the picture, and St. Augustine is shown in full archiepiscopal robes in the midst of the cortile, surrounded by a procession of choir-boys and clergy grouped really for picturesque effect, but quite devoid of ecclesiastical propriety. The colours, too, in pinks, ambers, yellows, and pale blues, have been dictated mainly with a view to harmony of tone and gradation of sober colouring. Four of the other designs more correctly represent St. Augustine in his monk's habit, but one and all are straggling in design and wanting in composition. The Cartoon Competition this year is won by Mr. H. A. Horwitz for his "Mark Antony showing Cæsar's mantle to the people: 'Look, in this place ran Cassius' dagger through.'" The figure is vigorously drawn, and is shown against a white ground. There were only two other competitors for this prize. Mr. Montford's gold medal sculpture group represents Jacob struggling with the angel. It is a spirited and particularly clever design, very picturesque in outline, with the outspread wings of the angel grandly treated. There were five other designs. The drawings submitted from the architectural schools call for no comment.

EMPLOYERS' IDEAS OF VALUE.

EMPLOYERS who are fond of denying their liabilities to their professional advisers, and who go to law rather than acknowledge their indebtedness, will do well to read the case in the Queen's Bench Division, which has been decided by Mr. Justice Hawkins, and reported in our last issue. The plaintiff, Mr. Mansbridge, a builder, sued Mr. Woods, defendant, for balance due on account of a house built for him at Bellagio. As usual, the defendant alleged that the contract had not been properly carried out, and charged the plaintiff with collusion with his architect. The defendant agreed to refer the matter to arbitration, and a quantity surveyor was appointed by the President of the Institute of Architects. The result of the arbitration was that the referee valued the house at a much larger sum than that repudiated by the defendant. Instead of paying the balance to the builder of £100 due upon the contract, he actually, by the judgment given upon his own action, had to pay £377, the difference between the contract price and the referee's estimate, with costs, including those of the referee. Mr. Justice Hawkins, in his judgment, said the "defendant having agreed to refer the question, he must abide by the result, whether favourable or not to him." The estimate made by the referee was, of course, on "measure and value," which amounted to £1,702, whereas the contract price was £1,425. The plaintiff only claimed the balance of £100 on the latter amount, or as an alternative £185, estimating the work according to the referee.

The result of this case is a warning to those litigious building owners who are always imagining that they are being fleeced.

The defendant alleged that the contract had been improperly carried out; but on what grounds he did so does not appear in evidence. It is certain the defendant could not have known very much about building, or he would not have charged the contractor and architect with collusion. Yet this allegation appears to be a very common mode of action when no explicit fault can be pointed out in the building. Perhaps it was an effort to obtain some abatement which many people after they have made a contract seek to do, thinking that a contract price has been framed for the purpose of being afterwards reduced. The idea of a discount is often entertained by those who in their commercial transactions are in the habit of making bargains, but the system is not tolerable in building contracts. The judgment in this particular case ought to be a useful lesson to employers who have no evidence of defective workmanship or materials, but who, to carry their point, make allegations that cannot be proved or justified.

The contractor, in this instance, was apparently a substantial gainer by the employer's action, for he was actually paid twice the amount he asked for. There are few contractors, we imagine, who would not prefer to accept "measure and value" prices for their contract if they had the opportunity. Many contractors on this system of valuation would be gainers of from 10 to 20 per cent. We should say, after reading this decision, employers will be shy of refusing to pay the balance on a contract without very sufficient reasons. Architects and builders will, of course, gather some comfort from the judgment; at the same time it will serve to draw attention once more to the sort of charge employers are apt to make when things do not go exactly as they like. The charge of collusion and fraud is one generally brought, without grounds, against architects; but we may imagine a case where the architect has given a final certificate to the builder, which the employer thinks is premature or before the contract has been fully carried out. Reasonable argument is of no avail, and the certificate is granted, much to the dissatisfaction of the employer, who refuses to honour the certificate. The contractor sues the employer, who has no alternative left than to censure his architect, and allege collusion on his part with the builder. But this charge has to be proved, and can only be confirmed by measuring the work executed to see if the value made by the certificates can actually be made out in the building. The withholding of a certificate, or unfairly making one, has been held to be sufficient to enable a contractor to bring an action against the employer, and to recover the full contract price, with extras, and in like manner the same principle would apply to an architect if he gave a certificate to the contractor without having satisfied himself of the condition of the work performed, or had given certificates which showed more money expended by the contractor than was really the case. It is at least conceivable for an architect in a large undertaking to make a mistake, or to give a certificate without ascertaining the actual amount of work done, and in this way to render himself liable to a charge of this sort; but such a mistake rarely occurs, especially when the work is measured at intervals.

We hear of a great many disputes arising from the over-confidence of building owners in their own opinions; they even obtain price-books and examine the priced quantities when those documents are accessible. Fortunately, the architect has the alternative of arbitration, and can prove his certificate, if need be, by "measure and value"—a process of estimation which, if the work is well done, does not generally err on the side of defect.

SIR FREDERICK LEIGHTON ON FRENCH ARCHITECTURE.

THE President of the Royal Academy delivered his biennial address to the students of the Academy Schools on Thursday evening in last week, the subject being a continuation of that dealt with in Sir Frederick's previous addresses—the relationship of the art of a country to its surrounding conditions. The addresses of 1887 and 1889 were devoted to the Italian and Spanish peoples, and this, the third lecture in completion of the theme, so far as the so-called Latin group is concerned, was a history of the evolution of the Gothic style in France, and its gradual supersession in the 16th century under the influence of the revival of Classic feeling. Having sketched the development of the French nation, Sir Frederick showed that, after the dark days in which the memory of Roman splendour had grown dim, Charlemagne called architecture out of its sleep. For the restoration of Gallo-Roman splendour Charlemagne called around him artists and skilled workmen from the south and east. The Roman basilica was taken, the President continued, as the model of the new churches which, with his aid, the monastic communities began to raise through the land, and thus Roman architecture became the starting point of the new development of the art of building. Nevertheless, other foreign influences early became active through contact, direct or indirect, with other races. An illustration of the profound modifications which such contact could bring about may be found in a comparison, for example, between the sculptured façade of the Church of St. Gilles, in Provence, a region much under Roman and Greek influence, and the Church of St. Front, at Perigueux. The latter church was begun towards the end of the 10th century, a few years after St. Mark's, in Venice, and, practically, on the same plan; the former is of much later date, yet the southern example is still strongly impregnated with Classic tradition, whilst the Aquitanian Church, with its five domes, is wholly Byzantine in its general character. Here the inspiration is derived undoubtedly from the Venetians. Both these instances, illustrating as they do the receptivity of the Gallic intelligence, exhibit, also, conspicuously, the freedom with which it fashioned foreign elements to its uses. This freedom is almost startlingly displayed at St. Gilles, where Classic material is handled with an audacity which, if leading in some points to an almost barbaric incongruity, produces a result in the last degree impressive and stimulating. The work is thoroughly southern; but it is a work of true genius, and infinitely fascinating. At Perigueux, also, we find the fire of native genius forming and fashioning material not indigenous. In ground plan, St. Front is almost identical with St. Mark's, and in its general structural features has much analogy with the Venetian church; nevertheless, the impression produced—the form, for the colour is now, from floor to roof, that of stone newly and sacrilegiously flayed and scraped—is wholly different; that love for slender and soaring forms which was to mark French architecture in the future is already evident; forms which in the Venetian model are sturdy and squat are elongated here almost to slimness: the whole proportion, and, therefore, its whole character, is changed; the Venetian idea has been translated into French. The impulse towards a revival of architecture was, we saw, given by Charlemagne, but it was not till the 10th and 11th centuries that the movement reached its full force; and its development was due mainly to the great monastic community which, founded by St. Benedict early in the sixth century, had poured from Monte Cassino its influence over Western Europe. This famous order had become a mighty power in France, controlling from the central foundation at Cluny not less than 314 monasteries and churches over the face of the country, and had offered, in days when the land was given over to fire and sword, a sacred refuge to whatever of refinement, of knowledge, and of culture still struggled to live. The model first adopted in the greater part of France for the uses of the Christian Church was the basilica of the Romans, with its nave and its aisles, its narthex and its apse. In this model, however, certain modifications were needed to meet the requirements of Christian worship and ritual, or for safety, and out of them grew the type of church known as Romanesque. Of these modifications one, the substitution of wagge headed vaults for timber roofs—a change ma necessary by the frequent occurrence of fires led to momentous consequences, for it is in t problems of vaulting that the so-called Gotl style had birth. In the vaulted buildings of t Romans stability was obtained through in resistance: the solid weight of their vaults w taken up by vast masses of brickwork a concrete—you may, in fact, regard these edifi as virtually hewn out of a solid block. T substitution of the principle of a balance active forces to this principle of inert resistan is probably the greatest revolution ever intr duced in the science of building: we have h the generative principle of Gothic architectu its essence and its life. Let us note in passi that the presence of a pointed arch, except a structural form, does not constitute Gothic arcl tecture. Isolated radiating pointed arches ha been built in ages and countries in which t Gothic style was not dreamt of; a building mig be Gothic in structure and principle, witho showing a pointed opening anywhere; it through the roof, not through the window, th the formative Gothic idea entered. Let us t to follow rapidly some of the main steps by whi it reached its ultimate development. The fi substitute for the discarded timber roof was th waggon vault thrown first tentatively over th aisles, then over the nave; and here an eleme of weakness soon made itself felt—the walls the nave, carried on piers, and of no great thic ness, were not equal to the outward thrust of th vault, and gave way. Various expedients we resorted to; buttresses were added at the poin corresponding with the piers, a transverse ban or rib, was flung across the nave from pier pier, the vault from being circular was, in son cases, broken and made pointed, rendering th thrust more vertical, but leaving it continuou The problem was not yet solved, a counteracti force, in which we see the germ of the flyi buttress, had, in certain regions, been applied namely, a half-waggon vault above the side aisle taking up the pressure of the central vault; b this arrangement condemned to practical dar ness the upper part of the nave, which, inste of windows, showed a cavernous gallery. Aquitania, a succession of cupolas on pe dentives was early adopted—an arrangeme which, though, as in the case of the cathedr of Le Puy, it yields grand and impressive effect is in many respects unsatisfying. An importa step in the new direction was next taken Vézelay, where intersecting vaults, but witho ribs, were substituted for the continuous waggo head; the thrust of the vaulting being th directed to the supporting piles. This arrang ment was, however, still found unsatisfactor and on a narthex being added or rebuilt on large scale, the same disposition of vaults w retained; but they were made pointed instead round. A few years later, in the early middle the 12th century, a Benedictine monk, Suger, t great Abbot of St. Denis, began the erection a church in which tentative gropings gave pla to the systematic and logical application of a ne and fruitful conception—the idea of stabili based on the balance of active forces, express in a self-sustaining combination of upright su ports and vaulting-ribs, with detached buttress bringing their action to bear exactly on t points at which the thrust of the vaults gathered up. So late as the days at whi Viollet-le-Duc wrote his great Dictionary Architecture it was believed, and he endorsed t belief, that this far-reaching conception had aris suddenly and spontaneously in the brain of o man; more recent investigation, in which Monsie L. Gouse, in his sumptuous work on Gothic A has, so far, said the last word, has brought o knowledge more into harmony with the gene analogy of things. To the famous Abbot b longs, it is true, the honour of the first systema application of the true principle, and his gr work must ever remain a landmark in the histo of architecture; but it was, in fact, only the l and most complete of a series of experimer covering a period of nearly half a century—e periments of which the earliest is seen in t church of a Benedictine monastery at Morie val. The church is in the heart of the "Domai Royal," of which Paris was the centre, and it within this Frankish region that the vario other tentatives to which he had alluded are be traced; it is in this region also that it reach its fullest development and left its most perf achievements. The development of the co

unes, fostered not only by the Kings, but by ie Bishops, who viewed uneasily the strength id independence of the monastic bodies, gave, y laicising it, a new direction to the art of ilding. Cathedrals, not abbeys, were now uilt—wider and loftier structures, breathing an r of larger freedom, and expressing a fuller ublic life. From this day forward the trammels f antique tradition were wholly cast aside, and hile French architects constructed in a style orn on their own soil, they looked at home enceforth also for its decoration, in the lanes nd fields of their native country. Gothic rchitecture leapt to its height in an amazingly ort space of time. Between the great reign of hilippe Auguste and that of Louis the Saint early all the great cathedrals of France were egun or reached completion. While the general onditions of intellectual energy favoured the rowth of the new phase of art, the peculiar ptitudes of the race were singularly calculated o promote it. There is, for instance, a sense of he decorative in form in which the French have emained unrivalled. But a characteristic bent as played no small part in the development of heir architecture—namely, a strong leaning to ong ascending lines, to slimness of proportion, nd to perpendicular parallelism. You may see curious illustration of this propensity in a eemingly insignificant matter—the timbering of he rural architecture in the north and centre of rance. These cottages are mostly of modern ate, but they represent a tradition of which you nay trace the source in the oldest parts of those owns in which timbered structures of an early eriod are still preserved. If you look at the imbering of a cottage or house in a purely eutonic country—in Germany or German Switzerland—you will find that the spaces left etween uprights and horizontals are approximately square and crossed with rather frequent iagonal lines; in the French examples, on the ontrary, whilst the diagonal lines are very few, he perpendicular line is absolutely dominant; ne horizontal line generally sufficing for a whole wall or gable front, and the vertical timbers being brought so close that the space between them is often no wider than the timber itself. Now it seems to me that this race was peculiarly fitted to conceive and develop the new style of building—a style in which inertness is replaced by active force; a style which, while in its absolute plasticity it offered the widest scope for innovating genius, required, nevertheless, for its fullest development the logical clearness and grasp of ideas which were conspicuous in the mental equipment of that race; a style in which liberty and restraint, audacity and prudence, science and emotion were so marvellously blended. It was through the balance of these opposite qualities that Gothic building reached its highest level; it was in the disturbance of that balance, in the undue encroachment of mathematics on sound artistic feeling, that the seed of its decline was sown. From the moment that all the forces of which the poise and stability of a structure were the result were gathered up into a system of ribs, shafts, buttresses, and pinnacles, forming a complete self-sustaining skeleton carrying a roof, not of concrete, but having the play and life of masonry, it became evident that, structurally, the wall had become superfluous; it was a mere screen, and accordingly the Frankish architects proceeded with constantly-increasing boldness to its suppression, gradually restricting the solids almost wholly to constructive functions; manifest construction became thus a leading feature of the style. Apart from the primary statical motive, the broken arch became in vaulting almost a necessity; the sides of a square being shorter than its diameter, it is evident that a round arch struck diagonally across it must be higher than the arches spanning its sides, and if the field to be vaulted is a parallelogram or irregular in plan, the number of unequal levels at the key of the arches is further multiplied, and those levels can only be brought into even approximate harmony either by stilting the smaller ones—as was done at first—or by breaking the arches, and this latter course soon became universal. The pointed arch having thus asserted its place in the construction of a building, the desire to suppress all superfluous wall space, allied to a sense of fitness, prompted its adoption in the case of the windows, which presently reigned over the whole space between pier and pier; and this expansion of the field of light was further demanded for the display of stained glass, to which growing importance was constantly given as an element of effect in the internal decoration of churches, and with glorious results. No one who has not seen, as one still may see in France, a cathedral of which the glass is preserved throughout, or nearly so, can form an idea of the effulgent magnificence and poetic charm which attach to this flinging of a heaven of colour about the majesty of the house of prayer. In France this effect is often heightened by the glazing of the triforium, which is opened out by the substitution of a ridge-roof for a lean-to over the aisles. The peculiar æsthetic bent to which attention has been called, the love of slim and aspiring lines, had special scope in a style in which horizontal lines had no necessary place except to satisfy the eye with a sense of binding between the parts; and, in truth, the horizontal line rapidly dwindled, almost in some cases to effacement. So, for instance, in the Cathedral of Clermont-Ferrand, the only horizontal in the whole building, if we except the window-sills, is a very narrow string along the base of the triforium, and this does not go round the pier shafts, which spring, absolutely unbroken, from roof to roof. The supremacy of the vertical line is here further emphasised by the carrying of the shafts of the clerestory windows—as is not infrequent in France—down through the triforium, which thus becomes, in a manner, one with the upper lights. The total effect is extremely dignified, and gives that sense of satisfaction inseparable from the spectacle of a consistently developed dominant idea. Another element of dignity was added to the French churches by a wealth of sculpture. While the carver's art in France was during the Gothic age prolific beyond example, it early reached and throughout maintained a high standard of excellence. It was everywhere full of sincerity and freshness, often of great beauty and stateliness, and always in its application marked with a strong sense of fitness and artistic propriety. Sparingly used in the interior of the churches, it spread with unstinted, though well-marshalled, profusion over their external features. But even as the stability of a Gothic church rested on a nice poise of mutually counteracting forces, so the maintenance of the style itself at its perfect point depended on a due balance of the intellectual forces which had generated it. This balance was soon to be disturbed. The craving to bring down to an irreducible minimum the amount of material that would suffice to the stability of a building extravagantly lofty was irresistible. Mathematical calculation resulted in the rearing of such a structure as the Choir of Beauvais, which was so lacking in solidity that it gave way within a few years of its erection, was rendered relatively stable only by doubling the number of its supports, and is held together to this day only by a network of iron ties—a building which distresses by its stilted and meagre aspect. Another church which exemplifies the training down of constructive forms to the last extreme of attenuation is St. Urbain of Troyes, in which the flying buttresses have the skeleton meagreness of iron girders. Lines were soon needlessly multiplied; narrow ridges first ran up the faces of the shafts, and then, as if convexity of surface was in itself a culpable waste, what had been a shaft was hollowed into furrows divided by an arris; concavity and rigidity invaded everything with an exasperating angularity of effect. Of this you may see an illustration in the Cathedral of Auxerre, where the choir retains the fuller forms and those of the nave shrivel into concavity. But if the causes noted led, in structural forms, to a rigid multiplicity of vertical lines, exterior decoration, which rapidly grew in exuberance, gave scope to that love of sinuous serpentine forms, born of a sense of the grace of motion, which has always marked the French, and, whilst vertical constructive lines multiplied themselves in the interior of the churches, an incontinent exuberance of fantastic curves began to spread over their exterior surface, clothing them with an embroidery of wildest decorative fancies. In this development of what became in the end an uncontrolled orgy of the chisel, the first step was a breaking-up of the tracery of the windows and a substitution for geometric forms of a "flamboyant" arrangement of curves. Meanwhile, into whatever excesses the French carvers were betrayed at this period of Gothic art, the vivacity and spontaneity of their genius ever light up their work and disarm criticism. We feel throughout that, with whatever redundancy and mannerisms, they are expressing themselves sincerely and in their own vernacular. Gothic architecture, though it continued till late to produce fine work, had lost its perfect balance already before the close of the 13th century; it had forfeited also some of its rich personality; nevertheless it held its own with the vitality of an indigenous growth, and fought long and manfully with the new ideas in the days of the sudden swinging back to Italian influence. But before leaving this branch of our subject I will note an instance of the fine tact of the French church-builders—viz., their adoption, which I cannot regard as fortuitous, of the circular east-end, the "chevet." Mr. Fergusson, indeed, sees the source of the French ground-plan in the addition of a nave to an original circular building. This ingenious explanation does not offer an adequate solution. How beautiful a square east-end may be we in this country abundantly know; but a church so terminated is a more or less arbitrarily truncated arcade which might be produced indefinitely. In the circular arrangement, on the contrary, not only is the design more visibly closed, but every limb of the encircling bays strives back, and is gathered up into a key suspended immediately above and emphasising the holiest spot—the altar of the sacrifice. And now we turn to a wholly new phase in French art, the expression of a new order of ideas and of altered social conditions. During the 14th and 15th centuries the prestige of the fighting nobility had suffered much through the introduction of artillery and the reverses of the English wars. The middle classes, on the other hand, had, under the favour of the Kings, steadily risen in importance. It was not, however, till the second decade of the 16th century that, through the example of that brilliant dilettante, Francis I., the Italian contagion showed important results. Within the thirty-five years of his reign a host of palatial buildings were raised in a new style, which, if it had not, as had the style it pushed aside, the virtue of indigenous growth, was certainly marked by extreme charm and beauty. Meanwhile, borrowed though the new style was, the French at once moulded it to their own genius, and produced a result distinctly personal to themselves; and the modifications they introduced in the Italian style were just such as you would expect from the different temper of the race. The restrained and sweet gravity which delights us in the purest examples of trans-Alpine Renaissance is too often wanting in the French work of the same class, and if the rank of a work of art is according to the dignity of the emotion it stirs in the beholder, then the creations of the great Italians rise to a higher level than those of the artists of the French Renaissance. For vitality and variety, on the other hand, for exuberance of fancy, for resourceful ingenuity of construction, and for a delicate sense of rhythm and proportion, the superiority of the work of the French is conspicuous. Above all things, it is their own, and for this reason the jealous investigation of recent times in France as to how far Italian artists have been unduly credited with the building of certain of the masterpieces of the Renaissance in that country is, however valuable in the interests of truth, of no great moment to the dignity of French art. It is patent that all but every work of the French Early Renaissance, however it may have originated, bears the unmistakable stamp of the fusing energy of French genius. That the style was not born in France is a fact no one can challenge; that it was recast in that country into a distinctly French thing no narrowness can dispute. The keynote of the Renaissance movement being the assertion of the beauty of life and the dignity of man, its influence was naturally most felt in connection with secular life. The great era of church building was past, and, indeed, the existing places of worship were not insufficient. The main determining motive of artistic activity under Francis I. was the ambition of the king and his nobles to multiply places of delight for their residence, especially in the country. Prodigious and breathless was the activity with which châteaux were raised, first in the Royal province watered by the Loire, and then in and about Paris. In the first line of architects stood Jean Bullant and Philibert de l'Orme, and in the second, Colin Biart, Pierre Chambiges, Pierre Nepreu, *alias* Trinqueau, Gadier, Le Prestre, and Hector Sohier. Although the great outburst of activity in the new direction coincides

with the reign of Francis, Italian influence had already begun to assert itself in architecture as in other things in the preceding century. In these buildings, however, the French and Latin elements are jumbled into a pasticcio rather than fused into a whole. It is interesting to observe the attitude of a people possessing great building traditions and very definite æsthetic propensities, in the face of an innovation imposed on it, in a manner, from without, but stimulating to its sense of beauty and its appetite for the new. Two influences were adverse to the new fashion —first, the spirit of the men of the burgher class; and, secondly, the conservative attitude of the Church. We see, accordingly, on the one hand, the municipalities continuing for some time to build their public halls on the old lines, and, on the other, the clergy erecting Gothic churches well into the 16th century, and retaining the structural dispositions of ogival architecture even after the outer forms of the Renaissance had been accepted for sacred buildings. We see edifices constructed on the basis of a predominance of the vertical line piled up painfully with tier upon tier of parts taken from a style based upon the opposite principle. In the case of secular buildings, the transition from the Later Gothic was facilitated by the fact that square-headed openings prevailed already in that style, of which, too, the incontinence in ornament was acceptible to the exuberant spirit of the new art. The character of that ornament, however, was entirely changed; fantastic, foreign arabesque took the place of the floral decoration which had been one of the glories of the French school. Meanwhile the love for aspiring forms lived on, and the tendency to complexity died hard. The wealth of sky-line produced by spires and pinnacles was perpetuated in high-pitched roofs, turrets, and tall buttressed dormer windows. The sky-line of Chambord could have been conceived only by an architect having Gothic tradition in his blood. In other matters, too, we find the Gothic habit surviving. The external winding staircase, for instance, was long preserved, and the grouped shaft survived in a colonnette engaged on the face of a pilaster. But most interesting to observe is the tenacious struggle of the vertical line throughout French Renaissance architecture. The Orders, with their bold entablatures, did compel some stress on horizontal lines, though this restraint was in part evaded; but their effect was balanced by an emphasised vertical grouping and uniting of the openings in the different stories, and by projecting wings, towers, and pavilions, which marked with perpendicular lines of shadow the elevation of the French building. Of the first period of the style the finest examples is the south-west angle of the Court of the Louvre, by Pierre Lescot, a building made doubly stately by the fact that the reliefs which so richly clothe it are due to the hand of Jean Goujon, who, with Germain Pilon, marks the highest level of French plastic art in the 16th century. By this time the knowledge of Classic art was becoming more thorough, and the application of its features more correct, and with a more Romanising spirit, a tendency to larger forms grew up; so, at Ecouen first, and later at Chantilly, we find Jean Bullant introducing the *ordre colossal*, an order, that is, embracing the whole height of a façade. But even in adopting this purely Roman device, his Gallic blood prompts him to a flouting of the horizontal line. He does so with curious thoroughness in the Pavilion which bears his name at Chantilly. But Bullant was yet to be outdone, for in the design of the inner court of Charleval, a work begun under Charles IX., but never carried out, and known to us only through Du Cerceau, who speaks of it with extravagant praise, we see not only a similar omission of floor line, but, actually, niches with statues so introduced that they cut across the exact spot where the floor lies, so that an effort of reflection is required to assure us that the floor *can* exist there. Philibert de l'Orme, the learned engineer, architect, and writer, was an artist of well-balanced mind and scholarly training, whose conceptions are marked by dignity and refinement, but in whom the stamp of genius is not so evident as in the less-cultured Bullant. To De l'Orme is due the introduction of what is called the *ordre français*—a column of which the fluted drums are divided by ornamental bands. But the days were near when the light of creative genius in art was to burn low. With the close of the century we find life and spontaneity at a low ebb—little production, a tendency now to heavy monotony and now to barocque redundancy, and a lack of sense of fitness which admitted of masking with a ponderous Classic façade churches built on the scheme of ogival architecture. Officialism, too, in artistic matters was at hand, and soon Colbert was to regulate the arts by Royal decree, and to found an academy which admitted only one saving creed. To that period let us revert to notice the parallel development of painting and sculpture. In the latter art we have already recorded the names of Jean Goujon and Germain Pilon. These great artists were not without forerunners, of whom Michel Columbe was the most gifted, though his works lack both suppleness and definiteness of artistic purpose. Nicholas Bachelier and the Giusti, the latter a family of Italians settled in Tours, but true to their nationality in the character of their works, should also be named. These artists, even more than Michel Columbe, seem overrated. Turning now briefly to painting, we find in the 16th century but little to rejoice us. Yet a few considerable names relieve it from barrenness. When Francis the First began to build he did not find amongst his countrymen painters to whom he could intrust the decoration of his numerous palaces. The 16th century in France does not boast in painting, apart from the Clovets, any name of much calibre, except perhaps that of Perréal, and certainly that of Jean Cousin. By the side of oil painting and illumination the arts of enamelling flourished greatly in France. In this category the great School of Limoges is known to you; the names of Pénicaud, Léonard Limousin, Reymond, and Pierre Courtois are familiar to all. In the art of glass painting you have, first, the great anonymous "verriers" of the Gothic period, and then during the Renaissance such men as Cousin, Pinaigrier, Le Pot, and Engrand le Prince, of whom the first-named is the greatest. The French gift of colour as manifested during the Middle Ages and the Renaissance seems to be based less on a sense of harmony and subtle combination than on a keen sensitiveness to luminous splendour and intensity of hue. Further, in much of the earlier glass the sumptuous results obtained are largely due to scientific combinations, of which the outcome is not always equally happy. The effect almost exclusively aimed at at first was a purple effulgence of hue; and this was produced by a scientific juxtaposition of very small red and blue fragments of glass, corrected by a sparing interspersion of other colours, and controlled by the close network of the lead lines. Now, these reds and blues, which produce together the dominant tone, are not seldom in themselves crude and harsh in the extreme, though generally yielding in combination a most gorgeous hue; and it is suggestive that when departing from this scientific scheme of balanced gem-like spots of colour—a scheme which involved, of course, designs very small in scale—the glass painters from time to time introduced larger figures, they seem to have cut themselves adrift from a sure anchorage. Their instinct of harmony was not an infallible guide; certain it is that the colour is in these cases not seldom disastrously discordant. This uncertainty of instinct is seen even more clearly in the later works in which a larger scale was uniformly adopted. The enamels of Limoges, of which some are so admirable and some so harsh, suggest similar reflections. And here I must take leave of this great and teeming century, naming only the Huguenot martyr, Bernard de Palissy, the famous potter, and Helène de Hangest, to whom is now ascribed the famous ware of Oiron known as "faïence Henri II." How architecture fared in the following century, "the Grand Siècle," I have already, the President added, suggested. The same taint of inflated monotony which prevailed in the works of the builders spread also to painting. Dull already in the hands of Simon Vouet and Sebastien Bourdon, it reaches the height of turgid pomposity with Charles le Brun, whose magnificent energies seem in these punier days to border on the fabulous. The reign of Louis Quinze is not one of great architectural activity: it is best mirrored in the the minor arts that minister to the comforts of life. A sprightly daintiness presides over all artistic production. The sinuous curves which already in the days of the flamboyant style had pushed aside the severer and more noble lines of the perfect Gothic, and had in their turn been held in check by the Latin spirit in the earlier days of the Renaissance, broke bonds when the grave closed over the solemn monarch, and ran riot in the domain of the applied arts. A senseless writh of unmeaning curves held carnival from that d over every object of use or ornament, and identified have these forms become with a cert elegance of social *ton* that the most favou classes all the world over see in them to this d the last word of elegance and taste. Yet ev in those days of rapid mannerism there were m who escaped the general taint. In architect a noble severity commends the works of Souff and Servandoni, and in painting Chardin e ployed his delicate gift in the rendering of sim scenes of homely life. But the truest interpre of whatever was gracious and dainty in this ar ficial epoch was that greater painter, though truer artist, J. B. Watteau. Is there any less asked Sir Frederick in closing, that we may dr from this survey of artistic evolution among t French? I have dwelt with emphasis on t genius of their mediæval builders; do I advoc the adoption of Gothic forms for the purpose our own lives? I have spoken to little effect my answer can be doubtful. Artistic forms the vesture of ideas and the expression of ment conditions; but the modern mind cannot, wi fitness, put on the garb which was moulded the mind of a day long past. But if we may n fitly adopt those forms, we cannot too reverent note the spirit which presided over their develo ment, for a like spirit brought to bear on oth material and under other conditions may yet be new and noble fruit. And the characteristics that spirit are: a masculine independence, tenacious grasp of central principles, a fearl sincerity in expression, a scorn of shams, a trust on truth.

THE ARCHITECTURAL ASSOCIATION

AN ordinary meeting of the Association w held on Friday evening, the Presiden Mr. F. T. Baggallay, in the chair.

SUGGESTIONS FOR THE PRACTICAL EDUCATION AN ARCHITECT.

A paper on this subject, which we reprodu in full on page 861, was read by Mr. T. Jackson, M.A., F.S.A.

Mr. H. O. Cresswell, in proposing a vote thanks to the lecturer, observed that in givin the Association the benefit of his experience an advice, and in discussing the scheme in so cal and quiet a manner, Mr. Jackson had done the an inestimable service, although they might n be able to agree with all his conclusions. It w to be regretted that Mr. Jackson's counsel ha not been obtained when the curriculum was bein framed. The Committee had not entered upo the Educational Scheme lightly, but neither di they regard it as perfect. They were very gla to hear Mr. Jackson's suggestions for improvin their system at the studio. The hint tha students should make details to large scale was valuable one, and so was the suggestion that th students should learn to put their designs int perspective—one which, although perhaps diffi cult to deal with in their practice, he cordiall endorsed, for many of the drawings submitte showed a lamentable ignorance of the element of perspective. The suggestion as to visits t workshops was also a valuable one, and h should be glad to find that arrangements coul be made for visits by these students to series of workshops. He did not propose to g into the question of examinations, as the member of the Association could hardly discuss th methods of the Institute. The Association' new scheme had been founded on the principl of accepting things as they actually were. Ex aminations in architecture existed, and if th Association did not prepare students for it, the would certainly go elsewhere. Of late years while the attendances at their classes had bee decreasing, a larger number of candidates ha presented themselves annually for examination showing that they must have been trained b crammers.

Mr. F. R. Farrow seconded the vote o thanks. Having had considerable experience a a crammer, he quite endorsed all that Mr. Jack son had said as to the evils of the system Students always wished to acquire just as littl knowledge as would enable them to pass. O some other points he could not so heartily concu with the lecturer. He could not agree in hi statements as to the value of the study of th history of architecture, and particularly with hi assertion that it would not do a man any good a an architect. The study tended to fit a man fo

ractice as an architect, and while the committal o memory of names, dates, and places might not e of practical benefit, yet the stores of knowdge were drawn upon by a sub-conscious ental process when a man set himself to esign. He did not refer to mere copying; ut the designer was able to draw from ne stores of past study, and to put together omething entirely different from the source hence it was derived. In the works of Mr. ackson, for example, they could often see hence he obtained his inspiration; but it was o imbued with Mr. Jackson's own spirit, and so arked by the peculiarities of his style, as to be is own. History really embraced the study of ne way in which men of the past dealt with the roblems before them. The work of Viollet-leuc on "Construction" was one of the best xamples of the history of architecture properly orked out in the whole domain of the ubject. He could not agree either with Ir. Jackson as to the relative value o the modern architect of Greek and Roman uildings. We could not properly understand ne Roman detail without first studying that of ne Greeks, for the Roman was but a developont of Greek work through the Græco-Roman ork of Asia Minor. As the late William urges had told them in that room, from the reek work they could learn principles. Burges's rt was itself widely removed in style from reek, but he held that it was necessary to study reek art.

Mr. Reginald T. Blomfield said those who gned the memorial would not come over and in the Institute and Association, because they issented from their principles. The establishent of an examination in architecture cut at the ery root of architecture, and it could not be enied that the Association's new scheme of ducation was designed to lead up to the examina-ion. Still, there need be no ill will in the natter. The fact was that there were two iffering conceptions of what an architect was. 'he view of the Institute was that he was a erson of three parts—a scientist, a man of busiess, and an artist, all these terms having, they eld, an equivalent value. The other view, that aken by those who signed the well-known nemorial against examinations, was that it vas absolutely impossible to separate contruction from art, as Mr. Jackson had o admirably put it that evening. Then he memorialists held that surveying had othing to do with architecture, and that, therefore, quantity surveying, estate planning, and ll the work of a commission agent, should be xcluded from an architect's career. If that were ccepted, a good deal of the new scheme of eduation would be unnecessary. They would send young man to a builder's workshops to learn is trades: he considered that he must have some ffice preparation before this was attempted, nd he should certainly be taught how to write a ood specification. Under the present system of rchitectural pupilage, it depended on the head f the office whether a young man were well rained or not. He thought any advance n architectural education should take place n the lines of the Royal Academy schools, proerly developed, with the addition of practice in workshop for artists of all classes. Professionalism, which was a genteel name for commercialism, would then disappear in a few years, nd then they might carry into effect the admirable motto of the association: "Design with eauty, build with truth."

Mr. Sydney Vacher hoped the Association would not decide to send its students down to builders' workshops in shoals, for if they did, the young men would assuredly be regarded as infernal nuisances. The better course would be that individual principals should bargain with builders to allow their pupils to spend, say, a day a week in the workshop, and should also arrange with clerks of works that the pupils should assist them in setting out the work and similar jobs. He thought principals ought to have the moral courage to tell pupils, if necesary—and there were many to whom it would apply—that they were not fit to become architects, but ought to devote their attention to something else. Many men, too, who entered the profession by the back door as office boys and tracing clerks, would make excellent craftsmen, and then office training would fit them the better to carry out the ideas of other men. His experience had been that the knowledge he gained from clerks of works and builders' foremen was of no use to him in passing the voluntary examination of the Institute, and he believed this would apply to the examinations now in force. The standard of the constructional section of those examinations was always put very high, and the artistic section very low. In reality, the architect did not begin to learn his proper work until he went into business. He should like to ask the practical question whether for a certain fee a young man could go to Mr. Jackson, for example, and get a few honest criticisms on his work? There would, if this course were generally adopted, be less of the awful work which a young man had to put up in his early days, and which his client had also to put up with.

Professor Kerr was glad to have heard from Messrs. Jackson and Blomfield some of the views held by their party. He had never made any pretensions to be a great artist, and, generally speaking, he should advise young men not to strive too earnestly after that position. What the public wanted—and he assumed that they were all servants of the public—was to have a certain amount of grace conferred on a building, this building being previously thoroughly well designed. Of course, when they met with a genius it was only right to give his abilities full play; but, generally speaking, the average man—and he assumed that he was addressing a meeting of average men with a few brilliant exceptions — would find that wisdom lay in moderation, even in artistic inspiration. As an impartial man he wished to say that he thought there was considerable misconception on the part of Messrs. Jackson and Blomfield as to the views held in the Institute. There was no disposition on the part of its members to disparage art knowledge, and if they would join the Institute he would promise them they should be given as much rope as they could wish for in regard to the art and enthusiasm they could introduce. The professional examinations had been established by Mr. Cates, who was a perfect man of business, and, indeed, a representative of the three qualities in an architect, the enumeration of which had so much offended Mr. Jackson and his friends. He must remind them that the architect had to serve the British public;—(No, no, and Hear, hear)—well, he would address those who were serving the public. He did not mean to disparage art, for he had advocated it foolishly all his life. The public opinion of the cultured classes in this country stood this way. They demanded first that a building should be thoroughly well planned; secondly, that its body corporate should be properly tested; and thirdly, they would, in moderation, take as much real and substantial grace as the architect could put on to the work. If any architect thought he could put too much grace into a building, he would leave him to settle the question with his employer. It was this added grace which created the great gulf between the mere builder and the architect. Now the Institute was beginning to say that other professions placed a bar across their gates to keep off outsiders, and thought it was desirable to place a similar bar across the gate of entrance to their own profession, and who could deny that this was desirable? He was not going to say that the argument might not be carried too far—indeed, he would grant that it seemed likely to be carried too far; but he would ask Mr. Jackson and his friends not to disparage the endeavour of their colleagues. They were seeking to make a respectable appearance before the British public, such as was being done by everybody else. He could not, however, forget that, in his younger days, the Institute of Architects was a learned society, on a level with the Royal, the Antiquaries, and other bodies of the kind; but if Fellows were to be admitted as a result of having passed certain examinations it would no longer stand on the level. It was all very well to examine a young man for the Associateship, and, if he failed, to relegate him to his studies; but men who had been in practice, say, ten years would not stand such an indignity. He desired to express his great satisfaction with the doctrines promulgated by Mr. Jackson with reference to education. Nothing could be more sound and practical in its tone, and such a dissertation could not fail to do good. In all that he had said on that subject he represented the Institute of Architects to the letter. He hoped that young men would not expect too much at first from the Association Scheme. He was still of the opinion he had before expressed, that they could not take too serious a view of the profession. The Association was to be congratulated on the boldness, earnestness, and intelligence with which they had entered on the new departure.

Mr. E. S. Prior must disagree with everything that Prof. Kerr had said. If architecture was what the last speaker had suggested, his advice to almost everyone would be to leave it alone. If the public considered an architect to be a degraded impostor, they ought to endeavour to lead them to expect a higher standard. Sir Gilbert Scott, in his presidential address to the Institute, declared that the present state of architecture was a national disgrace. Professor Kerr had repeated the suggestion that evening that the Institute would like to have the memorialists back within its ranks, and suggested that it would turn over a new leaf, and be indeed an Institute of Architecture. But when they came to put these kind intentions to the test, and brought before the Institute the fact that they distrusted the system of examination, the memorialists were told that the system could not be changed, for it had been established by Royal charter. This reply threw some light on the value of the good intentions of the Institute. But the subject of the evening was education. This could be viewed in two ways—as an end in itself, and as a means—the latter being the view held by the Institute, the end being the preparation for examination. He held that an Association for young architects should have nothing to do with the latter form of education, but should confine itself to education for the simple purpose of making a man a better architect, whether he were a servant of the public or not. The speaker referred to his personal experience as a pupil, that even under a good employer a pupil learned most concerning construction when sent out on actual works, and remarked that Viollet-le-Duc's dictum was true, that the study of archæology would not make a man an architect, but that the study of construction would in time do so. The real artist was, in fact, the man who worked, and not the man who sat in his office and made drawings. An architect's work could not be learned from books, but by seeing work done and by mixing with workmen. He could not understand an architect as the three-legged animal described in a recent presidential address. The architect was not a commercial man, and certainly not merely a professional man seeking a living and an income. The true aim of education by the Association would be to prepare a man to be a reality, and not a sham or half-architect.

Mr. E. Prioleau Warren objected very strongly to some of Professor Kerr's views. No doubt if a young man wished first of all to make a respectable appearance before the world, an examination afforded him the best facilities for so doing; but Heaven forbid that a young man should set out with that aim. Although it was in one sense true, as Professor Kerr said, that they were all servants of the public, he should protest against the assumption that architects were consequently to pander to the taste of the public. It was pleasant to hear that the Association was taking an independent stand, and was merely aiming at becoming a cramming school for the Institute examinations. He held that the architect, however unworthy his work might be, was precisely as much entitled to consider himself an artist as was an unworthy painter or sculptor. The question whether architecture was an art or a profession was not merely a question of names, but was one of facts and principles.

Mr. H. H. Statham said there was just this difference between architecture and sculpture or painting. People lived in houses, but could not live in pictures and statues, and it was all important that those who designed houses should be able to protect the inmates from bad drainage and other faults. The Institute had established examinations in response to a direct demand from the public.

The President, in summing up the discussion, observed that now they had heard the views of representative memorialists like Messrs. Jackson and Blomfield, there did not appear to be such a wide difference in their views as had been supposed. The Association had found it necessary, now that examinations in architecture had been established, to make provision for education for such tests, and had therefore included in their curriculum certain subjects, such as land surveying, which were not strictly architecture. They had excluded workshop practice, as no suggestion yet made had appeared

practicable. The memorialists were mistaken in their view, however, that the new scheme was intended solely as a preparation for the Institute examination.

Mr. Jackson, in acknowledging the vote of thanks, which had been carried by acclamation, said he was pleased to find that nearly all of those who had spoken were on his side. Nothing Professor Kerr had said had tended to remove his objections to the course the Institute had adopted. If architects were servants of the public, as Professor Kerr had said, the view he had propounded still held good that grace could be "added" to a building, for construction and design must go on simultaneously. There was no point at which architecture came in as an addition to construction, both must co-exist from the first. If architects required educating, the general public needed it still more. It was not for architects to serve the public, but it was their business to teach the public, and to put before them good work, and the more this was done by architects the higher would be the standard held outside. It was no use preaching by books—the public would not even go to the architectural room at the Academy, and if they did, he feared they wou'd not learn much. Prof. Kerr had asked why the memorialists did not join the Institute. It might be very disrespectful of him, but he could never understand why there should be an Institute of Architects at all; to take the extreme view, he could not perceive why there should be a registered and close body of architects any more than with other artists, for nothing could be more injurious to art. He could understand an Institute of "Architecture," but not of "Architects." He did not like to see the distinction drawn between architects and builders. Nine-tenths of our buildings were erected without being designed by architects, and what did the Institute, composed of men who designed one-tenth of the buildings, propose to do for those who carried out the other nine-tenths? Did they propose to leave the other buildings to take their chance? Let them take the membership of the Institute, again. They had a right to expect such a body to be composed solely of architects; now, was it a fact that members confined themselves to purely architect's work? If they took a proper view of art, its pursuit must absorb the whole of a man's time. He had been told that in the "London Directory" certain members of the Institute—about half, he believed—had a star to their names, denoting that they were also surveyors. Was that a body which they could ask the memorialists to join? If the Institute professed to be a close body they could not be too particular whom they admitted. He had been told that a mere surveyor could not be admitted as a Fellow; and what could the Institute do if a Fellow afterwards engaged in surveyors' practice?

Professor Kerr and Mr. Vacher having risen to correct Mr. Jackson, the President suggested that that was hardly the time or place to discuss the condition of membership to another body, and Mr. Jackson closed his reply by explaining that he did not discourage the study of old work. He simply held that work, whether old or modern, should only be studied if it were good of its kind, and, as a matter of fact, there was a larger proportion of good in old than in modern work.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE fourth ordinary meeting of the Institute was held on Monday evening, the President, Mr. J. MacVicar Anderson, in the chair. It was announced by the President that, by resolution of the council under the provisions of By-law 23, one Fellow and three Associates had under By-law 20 ceased to be members of the Institute, viz.:—Arthur Young, 1A, Inverness-terrace, W.; Charles Low Cadney, 40, Chancery-lane, W.C.; John Mossop, Commercial Buildings, Kidderminster; and Charles Edward Powell, 89, Chancery-lane, W.C.

THE EXAMINATIONS IN ARCHITECTURE.

The President announced the results of the examinations recently held at Manchester, and in that room at Conduit-street, W. For the Preliminary Examination, 69 candidates presented themselves out of 74 who had entered. Of these 21 were exempted from the tests, and of the others, 34 were examined in London and 14 in Manchester. Thirty-nine passed, making, with the 21 exempted, a total of 60 who had been entered as probationers, and the other 9 were relegated to their studies. For the Intermediate Examination, 16 out of 19 presented themselves in London, and 11 in Manchester. Of these 23 had passed, and were enrolled as students, and the other four had been relegated to their studies. For the examination in architecture, qualifying for the Associateship, 40 presented themselves out of 48 candidates. Of these 26 had passed, and the other 14 were relegated to their studies. The board of examiners considered that the first place in the last examination was taken by Mr. John Begg, formerly of Glasgow, now of London, to whom they had awarded the Ashpitel prize, and highly recommended Mr. Owen Fleming, of London, and Mr. John William Twist, of South Shields. The President remarked that after the close of 1893 all who underwent the qualifying examination for Associateship would have to pass the preliminary, intermediate, and final examinations. He also suggested that allied provincial societies could aid the examination movement by establishing in each large town a studio, such as had been already formed in Sheffield by the local Society of Architects and Surveyors. The fact that some candidates in each class had been relegated to their studies reflected no disgrace to those gentlemen, but at the same time it demonstrated that, contrary to the statements of some persons outside the Institute, these examinations were genuine tests. The examinations were progressing quite as satisfactorily as could have been expected. In conclusion, the President proposed a hearty vote of thanks to Mr. Arthur Cates, the indefatigable chairman of the Board of Examiners, and to his fellow members, for their arduous and unpaid labours, and a second vote of thanks to the Manchester Society of Architects for conducting examinations in that city.

These motions were seconded by Mr. Charles Barry, and carried amid applause.

AMERICAN THEATRES.

Mr. Horace Townsend, late of New York, read a paper on this subject, illustrated by numerous plans and sections. He remarked that, having been, during twelve years' residence in the United States, four years a practising architect and the remainder a dramatic critic and writer, he had had exceptional advantages for studying the American theatre. The theatre was, as now understood, a comparatively modern institution, and less hampered by precedent or tradition than most public buildings; but certain influences caused all theatres to present a family likeness, though the features offered points of difference. It was a curious fact that the American theatre-type followed the French in having no pit, although the theatre in America had, from a historic point of view as well as an architectural one, generally followed England rather than France. It was not until the middle of the last century that a permanent theatre was established even in New York, and, as far as could be judged, it was not unlike one of the smaller London playhouses of the same epoch. A generation or so ago, however, the Americans had become a theatre-going people, and theatres of pretensions, such as the Old Bowry, the Academy of Music, and Wallack's were built, following the English model with one important exception—the pit. It was, he thought, the inherent democracy of the people which led to the planning of the theatre with its "pit" (a term unknown in America) on the ground-floor level, and to the abolition of all boxes save the four on each side of the proscenium. In every case the theatre, even at that date, was conceived on a simple and sensible plan — viz., an oblong block divided in three parts transversely, of which the largest was in the middle, occupied by the auditorium; the second in size at one end, devoted to the stage; while the third was again divided into three parts by lines parallel to the greatest length of the oblong, the central of the spaces being devoted to the main entrance, which thus led directly from the street to the auditorium, and in the space on either side were the means for ascending to the higher portions of the house. The very latest American theatres were planned more or less on the same broad lines; but for some score or so of years the theatres erected afforded very few points of difference, many being built from one set of plans. During the 'seventies, however, a great influx of theatre-building took place, but it was not until the close of that decade that a small theatre erected in New York introduced a new era of American theatre architecture. The Madison-square Theatre, presenting many original points, was the outcome of the talents of more than one man. Two brothers named Mallory (one a Doctor of Divinity, the other the editor of a religious newspaper) provided the funds; an actor and manager, one Steele Mackaye, a portion of the ideas; and two clever young architects, Francis H. Kimball and Thomas Wisedell (an Englishman), the professional skill which put the theories into practice and materially improved upon them. Though the old form of horseshoe balcony or gallery, with the floor sloping upwards on one plane, offered excellent opportunities of hearing, people seated at the sides had a limited view. These architects obviated this difficulty, and gained a fairly large seating accommodation in an auditorium of limited capacity by sloping the main floor uniformly upwards from the stage, which was raised but slightly above the level of the auditorium, and each row of seats on the main floor was raised about 4½in. above the one immediately in front. The balcony above this main floor was very deep, approaching in its centre much closer to the proscenium line than usual, but instead of the horseshoe curve, the front was twice broken abruptly in its outline, being in the centre a little flatter than semi-circular, with the sides of an ogee form. Other details of the Madison-square Theatre were then given by Mr. Townsend, notably the arrangement of a double stage, the ventilation and warming of the auditorium, the picture-framed proscenium, and the overhead orchestra. Although the theatre was very successful, the practical good sense characteristic of the American people prevented a slavish imitation of it. Certain points, including the double stage and the overhead orchestra, not being found wholly successful, were discarded; but the heating and cooling apparatus and the seat arrangements were in the main followed by subsequent designers, and in existing theatres. The author then proceeded to point out the salient points of difference between the ordinary theatre in New York and London, taking, as an example of the former, the Madison-square Garden Theatre (not the building above referred to), and of the latter Terry's Theatre, designed by Mr. Walter Emden, as a favourable specimen of a London house. The Madison-square Garden Theatre was chosen by him as one of the first built under the new building laws, Terry's Theatre being also selected as of recent date. A noticeable difference was the greater space devoted to the stage and auditorium in the American theatre, though land was as a rule dearer in New York than London, and rentals higher, while the population was less than half of that in London. Then the great simplicity of arrangement — the main floor devoted to seats of one character and entered almost directly from the street; the balcony seated in the same homogeneous way, and reached by a broad and direct staircase—and the readier accessibility of the dressing-rooms, some of which open practically on to the stage, and none of them being below the level of the street; a point to be by no means overlooked. As regards the warming and ventilation, the author was almost inclined to sum up the difference between the two countries by saying the Americans heated and ventilated their theatres as well as cooled them in the summer, while the English did not; but he thought that might be beyond fair criticism. Certain it was, that in all the later theatres in America ventilation was as nearly perfect as might be. Mr. Townsend dealt next with several other theatres in New York, giving a description of each, among them the following:—The New York Casino, by Messrs. Kimball and Wisedell, one of the most beautiful theatres he knew of; Palmer's Theatre, not unlike the London Lyceum in form; the Metropolitan Opera House, the largest in the city; the Broadway Theatre, the Lyceum, the new Fifth Avenue, Hammerstein's Opera House, and Harrigan's Theatre. Though he had intended to be silent on the subject of decoration, he could not refrain from adding that London had no theatres that could be compared with the Metropolitan Opera House, the Lyceum, the Madison Square, or the Madison Square Garden in that respect; each was distinctly individual and original, and distinctly pleasing in effect. Of other theatrical centres in America, Philadelphia possessed few theatres calling for remark. Chicago, now that McVicker's was burned down,

was principally known by the Auditorium, which was a truly American building, called a theatre, and on occasions serving the purpose of one; in point of fact it was an enormous hall, designed chiefly for great musical festivals and political conventions. It was seated for 5,000, but could be reduced in size. The stage was most marvellous. It was worked by hydraulic pressure, and was divided into sections a few square feet in area, each of which could be raised or lowered independently of its neighbours by touching a button. No borders were used, but sky effects produced by a species of domed panorama. In Boston the author referred to the Boston Museum, the Boston Theatre, the "Tremont," and the Grand Opera House, which was illustrated by working drawings lent by Mr. N. B. Goodnow, the owner, and described in detail. Mr. Townsend held it was characteristic of the American client to consider that the best was the cheapest in the long run, and to this was greatly due the growth of a healthy and advanced architectural school in the United States; and perhaps also it was on this account that the New York Building Law, which was founded on that of Vienna, had been adopted without question or murmuring.

A discussion followed, and the usual vote of thanks was accorded Mr. Townsend.

SUGGESTIONS FOR THE PRACTICAL EDUCATION OF AN ARCHITECT.*

THE subject of the training of architects to the pursuit of architecture is one about which more has been said and written of late years than at any time before. It is a subject, too, about which there is, perhaps, more difference of opinion among us than about any other connected with our craft. That some better system of training young architects in the way they should go is desirable seems admitted on all sides. For although the advantages of pupilage or apprenticeship are so great that they are not likely to be given up, still the student must of necessity supplement the experience gained in his master's office by study and reading of his own; and the office is and should be to him rather the place where he may expect to see put into practice the lessons he has learned elsewhere than the place where he can expect to be taught directly everything that he ought to know. He has, therefore, to join classes at art schools, and to enter on a course of reading, sketching, and independent study of his own; and it is here that his troubles begin, and here, too, that he is likely to be perplexed by the totally different courses that are proposed to him. The first nostrum that is offered him is one that is at first sight quite beside the mark—examination. To his demand for instruction, the Royal Institute of British Architects replies, "We don't profess to teach you; you must get taught as best you can, but if you will come to us afterwards we will examine you." Now, the question of examination is not exactly our subject to-night, but it touches it in so many points that it cannot be avoided. For the present, however, we will pass it over, and by-and-by I shall find it necessary to say something more about it. After we have defined, with what preciseness we may, the kind of training and instruction necessary to make a man a tolerable architect, we shall be better able to judge how far the test of examination is applicable to it. A better answer to the demand is that which you yourselves of the Architectural Association have given. The voluntary or mutual system of instruction which you have for so many years usefully carried on is now being expanded under your new scheme into a wider and more complete plan of architectural education, which, if it is properly carried out, ought to go far towards supplying the want of which students complain. You are just at the beginning of a new career; it rests with you either to make it barren or fruitful; the question of its future usefulness depends entirely on the direction you give it at first starting—whether you shape it on the old lines of textbooks and stale examples and conform it to the cut-and-dried rules of a hard-and-fast curriculum, or whether you guide it with a lighter and more liberal hand, and, recognising that all men are not gifted in the same way, give to your system that elasticity which will enable each student to develop any special gifts he may possess. The success of your scheme will, in fact, depend entirely on the view you take of the student's needs and of the nature of the instruction that will do him the most good. What, then, is it that the student wants to be taught in order to become an architect? In the first place it is clear he must learn how to build well. Construction, planning, choice of material, and the proper use of it according to its nature, are not architecture, but they are the foundation of it; and, more than that, it is they that have moulded all the architectural styles that have ever really lived into the form by which we know them. But skill in construction and knowledge of building materials will not suffice to make the architect. He must not only be a good constructor, but he must know how to construct artistically as well as solidly. What architecture does for building is to give it the means of expressing itself, and of expressing itself with beauty and propriety. It does for building what the actor does for the play. The play may be written as well as you please, the repartee may be brilliant, and the dialogue sparkling; but if you drawl it out in an inexpressive monotone you will at the utmost convey the bare meaning of the words, and you will awake no emotion. But let the actor declaim the same words with passion and feeling, and he will make you ready to start from your seat, or draw tears to your eyes. Just so with our art; two designs may be equally good in point of plan, convenience, and construction, but the inartistic design, which stops with mere building, will give no pleasure and rouse no emotion; while the other, in the hands of an architect worthy of the name, arrests your attention and delights and satisfies the sense. But though good building must precede good architecture, do not think that architecture is a sort of ornamental varnish that may be laid on to something else that is brought to it ready made. It cannot be applied to a building by way of improvement, in the same way as you put gilding on to a picture-frame, or butter on to bread. Your art and your construction must go together, hand-in-hand, from the very beginning. From the very first you must work with a view not only to strength and convenience, but also to beauty and fitness; from the first your plan and your architectural design must grow up side by side. While you contrive approaches and arrange your rooms, your mind will be busy at the same time forming a picture of the building as it will work out on these lines, and as you go on you will shift a room, or a wall, or a pillar, recess one part, project another, or drill the whole into symmetry according to the architectonic idea in your mind, and to the character you wish the building to have. All this will advance *pari passu*; there is no especial moment at which one can say, "Here architecture comes in." It has been there from the beginning, inseparable from the plan and construction, affecting and modifying them in a hundred ways, and being affected and modified by them in its turn. For their influence is reciprocal. If it is bad to study construction independently of architectural considerations, it is, perhaps, worse to study architectural design apart from construction. It cannot stand alone. Construction is the framework or skeleton on which the figure is modelled, and if you deprive it of its backbone, architecture falls into a helpless mass of powerlessness, as incapable as a jelly-fish. This, then, is what the student of our craft has to learn in the first place, and as the key to all that follows—to construct well with an artistic motive. Mere constructive skill will make him an engineer, but will never make him an architect; and mere acquaintance with architectural forms and skill in reproducing them may make him a good draughtsman, but will never make him an architect. Construction and design must be learned together, not as separate studies, but as one simple subject to be mastered by everyone who aspires to be an architect. Now, while there is abundant opportunity for learning building construction pure and simple, irrespective of æsthetic considerations, there is no school, so far as I know, for teaching construction in the architectural sense which I have indicated, and here is a want that your new studio may admirably well supply if you manage it aright. By way of making quite clear what I mean, let me make some remarks on what I saw there a few weeks ago when at your invitation I attended as Visitor of the Advanced Class of Design. Among the designs that were then produced were several that showed considerable promise. Mistakes in planning, of course, were to be found, but they were generally of a kind that experience would easily correct. What struck me as especially amiss was that the authors of these designs had seldom or never really considered how their designs were to be carried out. There were open-timber roofs that looked pretty enough on paper; but which I was obliged to point out could not be constructed, because timber was not to be had 3ft. wide. There were arches, graceful and stately, which, for want of proper abutment, would infallibly have brought the building to the ground. But the worst was that the designers showed so little appreciation of the scale to which they were working. The drawings were all to the scale of 8ft. to an inch, and few of the students had thought what would be the effect of their details when enlarged to the real size. Some of them, when asked to sketch to a larger scale a section of the jamb of their windows or doors, were unable to do it. They had never thought about it, any more than they had about the scantling of their timbers, or the abutment of their arches. Now these are examples of design being studied apart from construction, and I should like to repeat here the suggestion I made there—that every student as he goes on with his design should make detailed drawings to a larger scale, or sometimes full size, of each piece of construction, or each architectural feature. He could not fail then to know his own meaning. He would not be misled by his own small-scale drawings, than which nothing is more deceptive even to an experienced eye, much more that of a student. This year, among the designs sent up for the National Art Prizes at South Kensington, was one which showed considerable ability, and was drawn in a taking way. A scroll of simple foliage, delicately touched in, filled a space over a doorway, and in the drawing looked very well; but measurement pitilessly exposed the fact that the leaves were 4ft. across, of which the author was probably quite unaware. He had been deceived by the scale of his own drawing, and had he been going to erect the building he would have had to alter his design; for, with his absurd leaf, the panel which it fitted would have had to go, and the whole composition would have been affected. There were submitted for competition numerous other designs where construction had been altogether ignored or evaded; domes and lanterns with no visible means of support, and so on; but I have selected this simple instance because the author had evidently, to a certain extent, considered his design properly and thought it out, and would not have made this mistake had he taken the trouble to make a working sketch, however slight, to a larger scale. Another suggestion I ventured to make in your studio the other night was that besides being always required to draw details of the design to a large scale, the students should proceed to write a short specification of the work. What is a specification? I do not mean the senseless farrago of repetitions and stock-phrases that some people write, but a sensibly-written document, with no unnecessary verbiage. It is simply a letter to the workmen, telling them once for all what, if you had no specification, you would have to tell them bit by bit as the work went on. You forestall the innumerable questions the workmen would have to ask when the occasion arose by writing their instructions down for them before they begin. But it serves another purpose as regards yourself. It forces you to define to yourself your own intentions. It perhaps reveals to you something in your design that will not do, and compels you to alter it; it obliges you to fix the notions that were floating in your mind, so as to admit of being put down in black and white; and it discovers to you any point on which your knowledge is imperfect, and about which your ignorance may need to be enlightened. I venture to suggest this as an excellent corrective to the tendency to fanciful and unpractical design, of which I saw signs in your new studio, and which cannot too soon be reduced to the stern rule of commonsense and necessity. Let this, then, be the first rule of your studio, that every student should make it clear to his own mind, and to that of his teacher, how his design is to be carried out—how the thing he is designing is to be made; and, if he cannot explain this satisfactorily to himself and others, he should be told that it is of no use his going on till he has cleared up the

* By T. G. Jackson, M.A., F.S.A. A paper read before the Architectural Association, Dec. 11, 1891. (See p. *post.*)

mystery and solved the problem in a satisfactory way as regards both sound construction and good artistic form. The great importance of this becomes evident when you consider what it is that an architect is called upon to do when he has a building to erect. Unlike the painter and sculptor, he does not produce his result by handling and shaping the materials himself, but by directing others how to do it. Remember that it is your work to design for craftsmen. What you draw on paper they will have to make somehow as best they can, and if you do not know how your own designs are to be carried out, how are they to know it? As you are working out your plans and elevations, try and put yourself in the place of the clerk of the works or foreman who will have to work from them; ask yourself what explanations he would need, and amplify your details and descriptions to meet his imaginary wants. In this way you will avoid making mistakes and omissions which might upset your design, and which otherwise you might not be able to detect; and you will discover to yourself your own ignorance and see what it is you have still to learn. And while I am on the subject of your drawing-classes, there is another suggestion that occurs to me, and that is, that the students should as early as possible be accustomed to put their designs into perspective. Nothing is more misleading than the habit of designing in elevation. An elevation is nothing but an upright plan, just as a plan is, if I may so put it, a horizontal elevation. Both are mere conventional representations, mere working diagrams, correct for use with rule and compass, but conveying no idea of the effect of the design. You may take it for a general rule that a building which looks well in elevation rarely looks well in perspective, and as we see buildings in perspective, and never in elevation, you will readily see which of the two ought to be first studied. My own practice, except in the simplest buildings where I can trust my experience without trial, is always to start a perspective at the same time as the elevations, and when the building is got to look right in perspective, I work back from it to the elevations, and alter them to suit the perspective. And this I would strongly recommend to your students as the best way of shaking their confidence in geometrical drawing, and teaching them as they go on to consider how the proportions and dimensions they are adopting will strike the eye in actual work. Some of the best among the designs which were shown me the other night would have come out in perspective very differently to the intentions of their authors, and, I fear, have caused them considerable disappointment. It is a common joke against architects that they take in unwary clients by showy, attractive drawings, that hold out a promise which the building fails to realise; but I am quite sure that architects themselves are quite as often taken in by their own pretty drawings, which come out very differently in bricks and mortar from what they appeared on paper. So much, then, as to drawing, which, after all, is not the main thing: for our drawings, it should be borne in mind, are not to be regarded as works of art, but rather as diagrams to explain the design to those who have to realise it. The design is the great thing, and the main object of an architect's education should be to train him in habits of design, to strengthen his imaginative powers by exercise, and to correct his taste by showing him good models. Two things are necessary to him—imaginative powers and knowledge. No one can give him the former, and if he is quite devoid of it, it is useless of his thinking of being an architect. But it is not necessary to have genius in order to turn out very fair work; work which is quite capable of giving a great deal of pleasure, much more than that afforded by the efforts of genius when misdirected and ill-applied. "If you have great talents," says Sir Joshua Reynolds, "industry will improve them; if you have but moderate abilities, industry will supply their deficiency. Nothing is denied to well-directed labour; nothing is to be obtained without it .... I will venture to assert that assiduity unabated by difficulty, and a disposition eagerly directed to the object of its pursuit, will produce effects similar to those which some call the result of natural powers." Moderate powers of imagination will grow stronger by practice, by observation, and by discipline. They can, in short, be educated, like any other faculty. The other necessary qualification, knowledge, depends on the student's own industry, assisted by proper teaching, and this assistance you now propose to give him. Some things he will learn from books; the history of his art can be acquired only by reading, and some knowledge of it is, of course, indispensable, while, if he has time for it, he cannot know too much. But let him be on his guard against thinking that an historical knowledge of art will do anything of itself to make him a better architect. "A perfectly illiterate man," says Sir Joshua, "will never make a great artist"; but, all the same, a man may be a very good artist without being a man of letters. It is impossible that every student of architecture should attain the same literary culture, nor is it necessary. No doubt the more you love your art the more curiously will you study its history; but do not suppose that by learning the names, dates, and history of the authors of the buildings of the past you are studying architecture. You are merely following an interesting and natural course of antiquarian research, which it is most highly desirable that you should follow; but take care to disabuse yourself of the notion that it will help you in the least degree to be a better architect. Not that I would in any way dissuade you from these studies if you have time and taste for them. They are not architecture, it is true; but, at the same time, if you are nothing but an architect you will be a very dull fellow. Only distinguish carefully in your mind between the study of your art and the study of its history and antiquities, which is a totally different pursuit. As an art-student you must of course understand the sequence of styles, and their characteristics, how they grew out of one another, and, in their turn, developed into something new; but in that capacity you will have nothing to do with the social history of the age of which they formed the outward expression. Your business is with the value of ancient buildings as works of art; if you admire them, analyse the causes which make them beautiful; if you are disposed to criticise them, do not be deterred by any reverence for their antiquity, but judge them fairly to the best of your powers. Look at them with your eyes open, appraise them without prejudice, try to understand them without being blinded by the charms of old association and historic interest, and in that way you will get from them all the help they are capable of giving you in your architectural training. In short, be an artist first and an antiquary afterwards, remembering that your vocation is not the study of the art work of the past, but the creation of works of art in the present.

(*To be continued.*)

HUDSON AND KEARN'S DIARIES.

EVEN without a reminder there is one thing that every architect and builder never fails to do before he shuts up for the Christmas holidays—next, of course, to renewng his subscription to the BUILDING NEWS for 1892—and that is to order one or other of the admirable diaries and registered date indicating blotting-pads for the coming year. We have probably a greater choice of these office companions than most people; but for the past seventeen years all others have given place to Hudson and Kearn's for use on our desks. The paper is of the best, the information of the latest, and year by year every opportunity is seized by the publishers of anticipating any possible use to which the architect or business man can put a diary or desk-pad.

The Municipality of Bilbao are about to invite engineers to submit preliminary plans for a system of sewers to prevent the pollution of the river Nervion. The best four plans will receive premiums varying between 10,000 and 1,000 pesetas (£4,000 to £400). Five months are allowed for the preparation of the plans.

The Blackpool Tower Company have completed the purchase of the Aquarium site, and possession of the land and buildings was formally handed over to them on Friday. Owing to a firm having failed to fulfil their agreement, the Tower Company have saved over £21,000, and the actual price paid for the site is £72,800, instead of £94,000, as stated in the prospectus. The contract for the foundation works has been let to Mr. Robert Neill and Sons, contractors, Manchester, and operations were formally commenced on Monday. Messrs. Maxwell and Tuke, of Manchester and Blackburn, are the architects.

PRICES.—XXVI.*

(All Prices Include Profit).

JOINER (*continued*).

		£	s.	d.
BORDERS, Lincrusta Walton, unfixed—				
⅝in. wide	per foot run	0	0	0½
¾ ditto	ditto	0	0	1
⅞ ditto	ditto	0	0	1½
1 ditto	ditto	0	0	1½
1¼ ditto	ditto	0	0	1½
1½ ditto	ditto	0	0	1½
1¾ ditto	ditto	0	0	1½
1⅞ ditto	ditto	0	0	1½
2 ditto	ditto	0	0	2
2¼ ditto	ditto	0	0	2
2½ ditto	ditto	0	0	2
2¾ ditto	ditto	0	0	2½
2½ ditto	ditto	0	0	2½
3 ditto	ditto	2½d.	to	3d.
3¼ ditto	ditto	0	0	3
3½ ditto	ditto	0	0	3
3¾ ditto	ditto	0	0	3
4¼ ditto	ditto	0	0	3½
4½ ditto	ditto	0	0	3½
5½ ditto	ditto	0	0	4
DADO mouldings—				
½in. to ⅝in. wide	ditto	0	0	0½
⅝ to ⅞ ditto	ditto	0	0	0½
1½in. wide	ditto	0	0	1
1⅝ ditto	ditto	0	0	1½
2 ditto	ditto	0	0	2
2⅛ ditto	ditto	0	0	2½
3 ditto	ditto	0	0	2½
4¼in. to 4¾in. wide	ditto	0	0	4
DADO rails—				
1¾in. wide (ebony)	ditto	0	0	6
2¼ ditto (red, brown, green, or buff)	ditto	0	0	9
2¾ ditto	ditto	0	0	10
3 ditto	ditto	9d.	to	1s. 3d.
3¼ ditto	ditto	0	1	6
3⅝ ditto	ditto	0	1	6
4⅝ ditto	ditto	0	1	6
CASINGS, fascias, &c., deal—				
1in. wrought casing	per foot super.	0	0	6
Ditto cross-tongued	ditto	0	0	7
Ditto ledged and slot screwed	ditto	0	0	10
Ditto keyed	ditto	0	0	9
1¼in. wrought casing	ditto	0	0	6½
Ditto cross-tongued	ditto	0	0	7½
Ditto ledged and slot screwed	ditto	0	0	9½
Ditto keyed	ditto	0	0	10½
1¾in. wrought casing	ditto	0	0	7
Ditto cross-tongued	ditto	0	0	8
Ditto ledged and slot screwed	ditto	0	0	10
Ditto keyed	ditto	0	0	11
1in. wrought *pine* fascia	ditto	0	0	8
Ditto cross tongued	ditto	0	0	9
Ditto ledged and slot screwed	ditto	0	0	11
Ditto keyed	ditto	0	1	0
1¼in. wrought *pine* fascia	ditto	0	0	9
Ditto cross tongued	ditto	0	0	10
Ditto ledged and slot screwed	ditto	0	1	0
Ditto keyed	ditto	0	1	1
1¾in. wrought *pine* fascia	ditto	0	0	10
Ditto cross-tongued	ditto	0	0	11
Ditto ledged and slot screwed	ditto	0	1	1
Ditto keyed	ditto	0	1	2
¾in. Honduras mahogany wrot. fascia	per foot super.	0	1	4
Ditto ledged and slot screwed	ditto	0	1	8
Ditto keyed	ditto	0	1	10
1in. Ditto	ditto	0	1	6
Ditto ledged and slot screwed	ditto	0	1	10
Ditto keyed	ditto	0	2	0
1¼in. Ditto	ditto	0	1	8
Ditto ledged and slot screwed	ditto	0	2	0
Ditto keyed	ditto	0	2	2
CASINGS, pipe—				
¾in. narrow and one rebated ground	per foot run	0	0	5
Ditto with two grounds	ditto	0	0	6
Ditto beaded	ditto	0	0	6½
¾in. wide casings, and with two rebated and beaded grounds	per foot super.	0	0	9
Ditto cross-tongued	ditto	0	0	10
1in. narrow and one ground	per foot run	0	0	6
Ditto two grounds	ditto	0	0	7
Ditto beaded	ditto	0	0	7½
Wide ditto, and with two rebated and beaded grounds	per foot super.	0	0	10
Ditto cross-tongued	ditto	0	0	11
Add for fixing with *brass* cups and screws		0	0	2
Add for doors *plain-ledged*, hung in same, not including hinges or locks		0	2	0
¾ by 1½ wrought and chamfered electric wire casing	per foot run	0	0	2½
¾ by 2½ ditto ditto	ditto	0	0	3
1 by 2 ditto ditto	ditto	0	0	3
1 by 2½ ditto ditto	ditto	0	0	3½
¾ by 2 moulded	ditto	0	0	3
1 by 2½ ditto	ditto	0	0	3½
1 by 3 ditto	ditto	0	0	4
RACKS AND MANGERS, &c.—				
1in. rough deal manger fronts or backs	per foot super.	0	0	5
1½ ditto	ditto	0	0	5½
1¾ ditto	ditto	0	0	6
2 ditto	ditto	0	0	7
1 ditto divisions in short lengths	ditto	0	0	7
1½ ditto	ditto	0	0	7½
1⅝ ditto	ditto	0	0	8
2 ditto	ditto	0	0	9
1 wrought ditto mangers and backs	ditto	0	0	6
1½ ditto	ditto	0	0	6½
1⅝ ditto	ditto	0	0	7
2 ditto	ditto	0	0	8
Add for planed both sides		0	0	1
1in. divisions in short lengths	ditto	0	0	8

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		£	s.	d.
1½in. divisions in short lengths	per foot super.	0	0	8½
1½ ditto	ditto	0	0	9
2 ditto	ditto	0	0	10
1 rough deal bottoms	ditto	0	0	5
1¼ ditto	ditto	0	0	5½
1½ ditto	ditto	0	0	6
2 ditto	ditto	0	0	7
1in. rough elm ditto	ditto	0	0	7
1¼ ditto	ditto	0	0	8
1½ ditto	ditto	0	0	9
2 ditto	ditto	0	0	10½
1in. rough elm fronts and backs	ditto	0	0	7
1¼ ditto	ditto	0	0	8
1½ ditto	ditto	0	0	9
2 ditto	ditto	0	0	10½
1in. ditto elm divisions short lengths	ditto	0	0	9
1½ ditto	ditto	0	0	10
1½ ditto	ditto	0	0	11
2 ditto	ditto	0	1	0
2 by 3 deal wrought rebated and rounded capping	ditto	0	0	2¾
2½ by 3 ditto	ditto	0	0	3
3 by 4 ditto	ditto	0	0	4½
2 by 3 elm ditto	ditto	0	0	3⅜
2½ by 3 ditto	ditto	0	0	4⅛
3 by 4 ditto	ditto	0	0	6¾
2 by 3 English oak	ditto	0	0	4⅜
2½ by 3 ditto	ditto	0	0	5⅜
3 by 4 ditto	ditto	0	0	8
1 by 2 deal caps to divisions let in both ends and screwed	each	0	0	5
1¼ by 2½ ditto	ditto	0	0	6
1½ by 3 ditto	ditto	0	0	7
2 by 3 ditto	ditto	0	0	8
1 by 2 elm	ditto	0	0	7
1¼ by 2½ ditto	ditto	0	0	8
1½ by 3 ditto	ditto	0	0	9
2 by 3 ditto	ditto	0	0	11
1 by 2 oak	ditto	0	0	8
1¼ by 2½ ditto	ditto	0	0	9
1½ by 3 ditto	ditto	0	0	10
2 by 3 ditto	ditto	0	1	1
2 by 3 frame bearers per set, cut and pinned to wall and floor	ditto	0	2	0
3 by 4 ditto	ditto	0	2	6
2 by 3 elm	ditto	0	3	0
3 by 4 ditto	ditto	0	3	9
2 by 3 oak	ditto	0	3	6
3 by 4 ditto	ditto	0	4	6
1¼in. wrought both sides and matched division fitted to iron or wood	per foot super.	0	0	5½
Ditto V-jointed or beaded both sides	ditto	0	0	6
1⅔in. ditto both sides and matched ditto	ditto	0	0	6½
Ditto V-jointed or beaded	ditto	0	0	7
2in. ditto both sides and matched	ditto	0	0	7⅓
Ditto V-jointed or beaded	ditto	0	0	8
1¼in. raking cut and waste, and fair edge	per foot run	0	0	2
1½ ditto	ditto	0	0	2⅔
2 ditto	ditto	0	0	3
1¼in. wrought, both sides pitch-pine ditto matched and fitted	ditto	0	0	6⅔
1½ ditto	ditto	0	0	7⅔
2 ditto	ditto	0	0	9
1¼in. raking cut and waste, &c.	ditto	0	0	2⅔
1½ ditto	ditto	0	0	3
2 ditto	ditto	0	0	3⅔
1¼in. Honduras mahogany division matched and beaded both sides and fitted	ditto	0	1	6
1½ ditto	ditto	0	1	10
2 ditto	ditto	0	2	6
2 by 3 rough grooved deal sills	ditto	0	0	2½
2½ by 3½ ditto	ditto	0	0	3
3 by 4 ditto	ditto	0	0	4
2 by 3 elm ditto	ditto	0	0	4
2½ by 3½ ditto	ditto	0	0	5
3 by 4 ditto	ditto	0	0	6
2 by 3 wrought, grooved, and chamfered sill	ditto	0	0	3½
2½ by 3½ ditto	ditto	0	0	4⅔
3 by 4 ditto	ditto	0	0	5
2 by 3 pitch-pine ditto and ditto	ditto	0	0	4⅔
2½ by 3½ ditto	ditto	0	0	5⅔
3 by 4 ditto	ditto	0	0	6
Ends framed to posts	each	0	0	6
Ditto pinned to wall	ditto	0	0	9
2 by 3 rough deal rounded heads or capping	per foot run	0	0	2½
2½ by 4 ditto	ditto	0	0	3½
3 by 4 ditto	ditto	0	0	4
2 by 3 ditto elm ditto	ditto	0	0	4
2½ by 4 ditto	ditto	0	0	5
3 by 4 ditto	ditto	0	0	6
2 by 3 wrought ditto	ditto	0	0	3½
2½ by 4 ditto	ditto	0	0	4⅔
3 by 4 ditto	ditto	0	0	5
2 by 3 ditto pitch-pine ditto	ditto	0	0	4⅔
2½ by 4 ditto	ditto	0	0	5½
3 by 4 ditto	ditto	0	0	6
Ends framed, &c., the same prices as last—				
4 by 4 rough posts, arrises taken off	ditto	0	0	5
Ditto chamfered two angles	ditto	0	0	6
5 by 5 ditto	ditto	0	0	7
Ditto chamfered two angles	ditto	0	0	8
6 by 6 ditto	ditto	0	0	10
Ditto chamfered two angles	ditto	0	0	11
Ends let into floor	each	0	0	4
Ditto framed to joists	ditto	0	0	6
Ditto shaped plainly	ditto	0	1	6
Fixing iron harness rings	ditto	0	0	3
Ditto ditto hooks	ditto	0	0	3
Ditto ditto pegs	ditto	0	0	2
Deal harness pegs	ditto	0	0	3
Oak turned ditto	ditto	0	0	4
1in. harness rail, 9in. wide, wrought one side, and chamfered or beaded	per foot run	0	0	5
1¼in. ditto ditto	ditto	0	0	6
1½in. ditto ditto	ditto	0	0	7

		£	s.	d.
Ends of chamfer returned	per foot run	0	0	2
Ditto return beaded	ditto	0	0	3
SUNDRIES IN DEAL—				
1in. deal rebated runners	ditto	0	0	2
Ditto double rebated	ditto	0	0	2½
1in. wrought fillet	ditto	0	0	1½
1¼in. ditto ditto	ditto	0	0	2
1½in. ditto ditto	ditto	0	0	2⅔
Glued blockings, small	ditto	0	0	1
Ditto ditto large	ditto	0	0	1½
Small bead bradded on as to shelves, &c.	ditto	0	0	1
Ditto large for stops	ditto	0	0	1½
Rounded and mitred stops or nosings	ditto	0	0	1½
Beaded capping to framing	ditto	0	0	2
Ditto both edges beaded	ditto	0	0	2½
Moulded ditto	ditto	0	0	2½
Ditto both edges	ditto	0	0	3
2in. square framed legs and rails	ditto	0	0	2½
2½ ditto ditto	ditto	0	0	3
3 ditto ditto	ditto	0	0	3½
4 ditto ditto	ditto	0	0	4½
2in. turned ditto	ditto	0	0	3½
2½ ditto ditto	ditto	0	0	4
3 ditto ditto	ditto	0	0	5
4 ditto ditto	ditto	0	0	6
⅝ by 1½ narrow ground	ditto	0	0	1½
1 by 2 ditto	ditto	0	0	2
1 by 2½ ditto	ditto	0	0	2½
Add grooving	ditto	0	0	0½
Ditto rebating	ditto	0	0	0½
Ditto bevelled edge	ditto	0	0	0½
1 by 2 double beaded chair or pot rail	ditto	0	0	2
1 by 2½ ditto ditto	ditto	0	0	2½
1 by 3 ditto ditto	ditto	0	0	3
1½ by 3½ ditto ditto	ditto	0	0	3½
1½ by 4 ditto ditto	ditto	0	0	4
Mitres	each	0	0	2
Ends return beaded	ditto	0	0	3
Stops for drawers screwed on	ditto	0	0	2
Hardwood buttons and screws	ditto	0	0	2
Deal bearers for shelves	ditto	0	0	3
1in. wrought shelf and bracket, for 5-light meter	ditto	0	2	6
Ditto 10-light ditto	ditto	0	4	0
Ditto 20-light ditto	ditto	0	6	0
Copper lids 20in. diameter, of pine, with ledges pegged on to tops	ditto	0	5	0
Ditto 24in.	ditto	0	6	0
Ditto 30in.	ditto	0	7	6
Gallows brackets for shelves, cutting and pinning to wall not included	ditto	0	1	6
Ditto large ditto ditto	ditto	0	2	6
Small ogee or similar shaped brackets, plugged to wall or housed to deal	ditto	0	1	0
Bell boards of 1in. by 11in. deal, wrought one side, and beaded with return beaded ends for 6 bells	ditto	0	2	6
Ditto ditto 9 ditto	ditto	0	3	6
Ditto ditto 12 ditto	ditto	0	4	6
Ditto ditto 18 ditto	ditto	0	7	0
Floor boards cut and screwed, with bearers over gas or bells, &c.	ditto	0	0	6
Towel rollers, 18in. and brackets	ditto	0	3	6
2½in. imitation ebony dresser drawer knobs	ditto	0	0	6
2½in. ditto ditto	ditto	0	0	8
LABOUR.				
Rebate, ½in. by 1in.	per ft. run	0	0	0½
Ditto ½ by 1¼	ditto	0	0	0¾
Ditto ¾ by 1¼	ditto	0	0	0¾
Ditto 1 by 2	ditto	0	0	1
Beads ¼ by ⅜	ditto	0	0	0⅛
Ditto ½ by ¾	ditto	0	0	0⅜
Ditto 1 by 1¼	ditto	0	0	0⅝
Staff beads, ½	ditto	0	0	0½
Ditto ¾	ditto	0	0	0¾
Ditto 1	ditto	0	0	1
Ditto 1¼	ditto	0	0	1
Ditto 1½	ditto	0	0	1¼
Grooving ⅛ to ⅜	ditto	0	0	0¼
Ditto ½ to ¾	ditto	0	0	0⅜
Hollows ⅜	ditto	0	0	0⅜
Ditto ½	ditto	0	0	0½
Ditto ¾	ditto	0	0	0¾
Ditto 1	ditto	0	0	1
Ditto 1¼	ditto	0	0	1
Mouldings ⅜	ditto	0	0	0⅜
Ditto ½	ditto	0	0	0½
Ditto ¾	ditto	0	0	0¾
Ditto 1	ditto	0	0	1
Ditto 1¼	ditto	0	0	1
Ditto 1½	ditto	0	0	1
Ditto 2	ditto	0	0	1¼
HARDWOOD: PITCH-PINE.				
DOORS (dwarf)—				
1in. square framed, one panel	per ft. sup.	0	0	10
Ditto ditto bead butt	ditto	0	0	11
Ditto ditto flush	ditto	0	1	0
Ditto ditto moulded one side	ditto	0	0	11½
Ditto ditto ditto two sides	ditto	0	1	0⅜
Ditto ditto stop-chamfered one side and plain stops	ditto	0	1	3
Ditto ditto ditto two sides	ditto	0	1	8
Ditto ditto two panels	ditto	0	0	11
Ditto ditto bead butt	ditto	0	1	0
Ditto ditto ditto flush	ditto	0	1	1
Ditto ditto moulded one side	ditto	0	1	1½
Ditto ditto ditto two sides	ditto	0	1	3
Ditto ditto stop-chamfered one side	ditto	0	1	5
Ditto ditto ditto two sides	ditto	0	1	9½
1¼in. ditto one panel	ditto	0	0	11
Ditto ditto bead butt	ditto	0	1	0
Ditto ditto ditto flush	ditto	0	1	1
Ditto ditto moulded one side	ditto	0	1	0⅜
Ditto ditto ditto two sides	ditto	0	1	2
Ditto ditto stop-chamfered one side	ditto	0	1	4
Ditto ditto ditto two sides	ditto	0	1	8½
Ditto ditto two panels	ditto	0	1	0
Ditto ditto bead butt	ditto	0	1	1
Ditto ditto ditto flush	ditto	0	1	2
Ditto ditto moulded one side	ditto	0	1	1½
Ditto ditto ditto two sides	ditto	0	1	3
Ditto ditto stop-chamfered one side	ditto	0	1	5
Ditto ditto ditto two sides	ditto	0	1	10
1in. square framed, raised panels	per ft. sup.	0	1	7
1¼in. ditto one panel	ditto	0	1	1
Ditto ditto bead butt	ditto	0	1	2
Ditto ditto ditto flush	ditto	0	1	3
Ditto ditto moulded one side	ditto	0	1	2½
Ditto ditto ditto two sides	ditto	0	1	4
Ditto ditto stop-chamfered one side	ditto	0	1	6
Ditto ditto ditto two sides	ditto	0	1	11
Ditto ditto raised panels	ditto	0	1	7
Ditto ditto two ditto	ditto	0	1	3
Ditto ditto bead butt	ditto	0	1	4
Ditto ditto ditto flush	ditto	0	1	5
Ditto ditto moulded one side	ditto	0	1	4½
Ditto ditto ditto two sides	ditto	0	1	6
Ditto ditto stop-chamfered one side	ditto	0	1	8
Ditto ditto ditto two sides	ditto	0	2	1
Ditto ditto raised panels	ditto	0	1	9
2in. ditto one panel	ditto	0	1	1
Ditto ditto bead butt	ditto	0	1	2
Ditto ditto ditto flush	ditto	0	1	3
Ditto ditto moulded one side	ditto	0	1	2½
Ditto ditto ditto two sides	ditto	0	1	4
Ditto ditto stop-chamfered one side	ditto	0	1	6
Ditto ditto ditto two sides	ditto	0	1	11
Ditto ditto raised panels	ditto	0	2	0
Ditto ditto ditto two sides	ditto	0	2	6
Ditto ditto top panels cut for glass, loose beads not included	ditto	0	1	2
Ditto ditto top panels sashed	ditto	0	1	5
Ditto ditto in small squares	ditto	0	1	7
Ditto ditto folding extra	ditto	0	0	1

Any piece of framing less than 4ft. super to be priced at a higher rate, and only 1ft. at twice the ordinary price. Intermediate small sizes at proportionate rates.

		£	s.	d.
DOORS, two panels, pitch-pine—				
1in. square framed	per ft. sup.	0	0	10
1¼in. ditto	ditto	0	0	11
Ditto ditto bead butt	ditto	0	1	0
Ditto ditto ditto flush	ditto	0	1	1
Ditto ditto moulded one side	ditto	0	1	0½
Ditto ditto ditto two sides	ditto	0	1	2
Ditto ditto bolection moulded one side, and plain moulded the other	ditto	0	1	3
Ditto ditto bead butt and moulded	ditto	0	1	1½
Ditto ditto ditto flush ditto	ditto	0	1	2½
Ditto ditto stop chamfered one side plain stops	ditto	0	1	4
Ditto ditto ditto two sidss	ditto	0	1	9
1¼in. ditto	ditto	0	0	11½
Ditto ditto bead butt	ditto	0	1	0⅜
Ditto ditto ditto flush	ditto	0	1	1½
Ditto ditto moulded one side	ditto	0	1	1
Ditto ditto ditto two sides	ditto	0	1	2½
Ditto ditto ditto one of them bolection moulded	ditto	0	1	3½
Ditto ditto stop-chamfered one sides	ditto	0	1	4½
Ditto ditto ditto two sides	ditto	0	1	9½
Ditto ditto raised panels one side	ditto	0	1	10½
Ditto ditto top panels cut for glass not including loose beads	ditto	0	1	0½
Ditto ditto top panel sashed	ditto	0	1	4
Ditto ditto ditto in small squares	ditto	0	1	6
Add if hung folding to any of the above		0	0	1
2in. square framed	ditto	0	1	1
Ditto ditto bead butt	ditto	0	1	2
Ditto ditto ditto flush	ditto	0	1	3
Ditto ditto moulded one side	ditto	0	1	2½
Ditto ditto ditto two sides	ditto	0	1	4
Ditto ditto ditto and one bolection	ditto	0	1	5
Ditto ditto stop chamfered one side	ditto	0	1	6
Ditto ditto ditto two sides	ditto	0	1	11
Ditto ditto raised panels one side	ditto	0	2	0
Ditto ditto ditto ditto two sides	ditto	0	2	6
Ditto ditto top panels cut for glass, loose beads not included	ditto	0	1	2
Ditto ditto top panels sashed	ditto	0	1	5
Ditto ditto in small squares	ditto	0	1	7
Ditto ditto folding extra	ditto	0	0	1

CHIPS.

The widow of the late George Vulliamy, for many years architect to the late Metropolitan Board of Works, died at her residence at Burnt Ash Hill, Kent, on the 10th inst., aged 69 years.

St. Mark's Church, Fitzhugh, near Southampton, was consecrated on Tuesday week. It has been erected by Messrs. Joseph Bull, Sons, and Company, of Southampton, from designs of Messrs. J. E. K. and J. P. Cutts, of London. It is of red brick with Bath-stone dressings externally and internally, consists of nave and side aisles, separated by stone columns and arcades. It provides accommodation for 708 worshippers. There is an organ chamber, but the organ has yet to be provided.

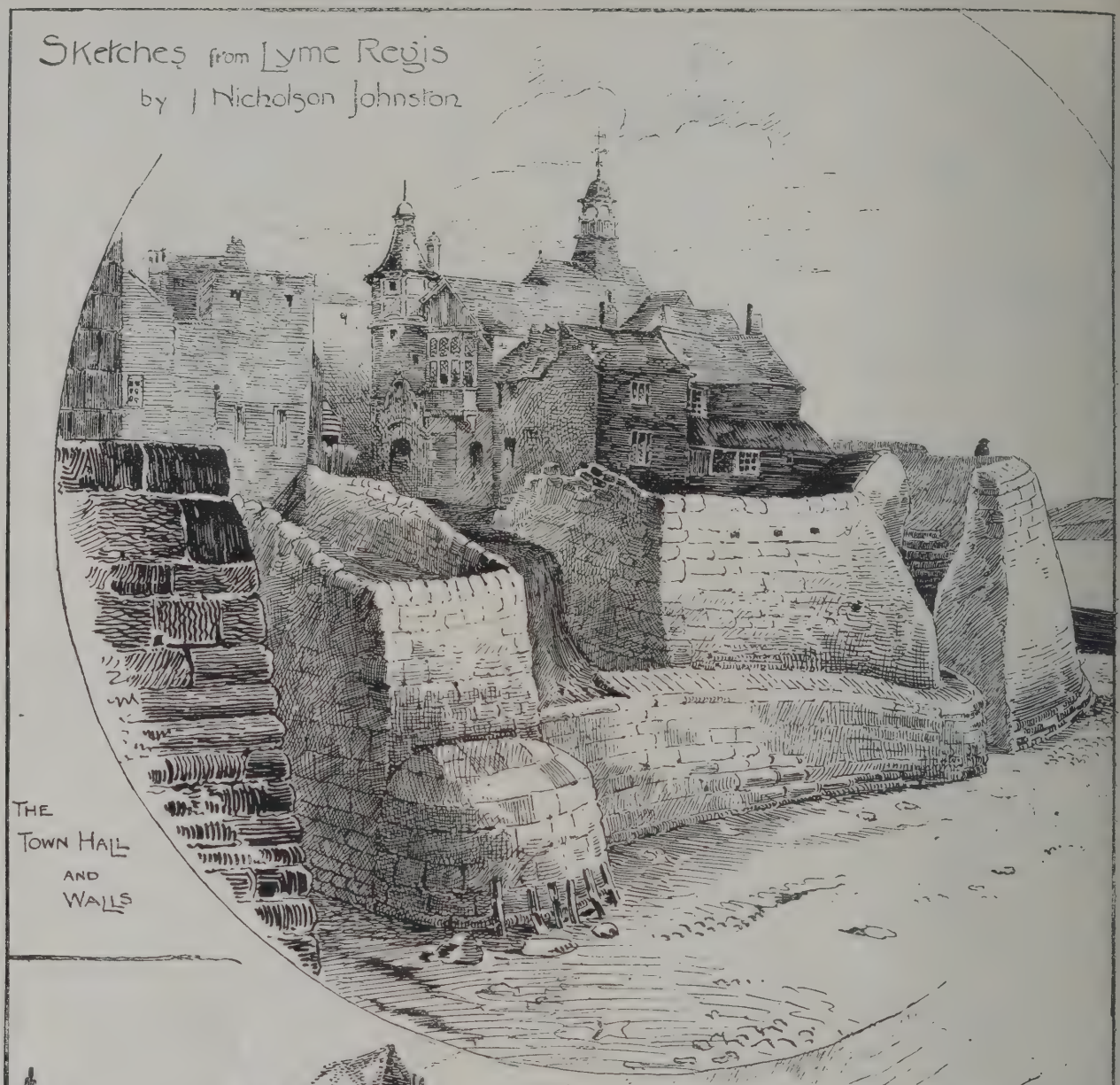
Acting on the recommendation and report of Mr. James Mansergh, C.E., the corporation of Ipswich have unanimously decided to promote a Bill in Parliament for the purchase of the waterworks from the local company. The price to be paid is £222,000, equivalent to 28 years' purchase.

The town council of Heywood, Lancs, have decided to institute a competition for plans for a technical school, and to offer premiums of £20, £10, and £5 for the three selected designs.

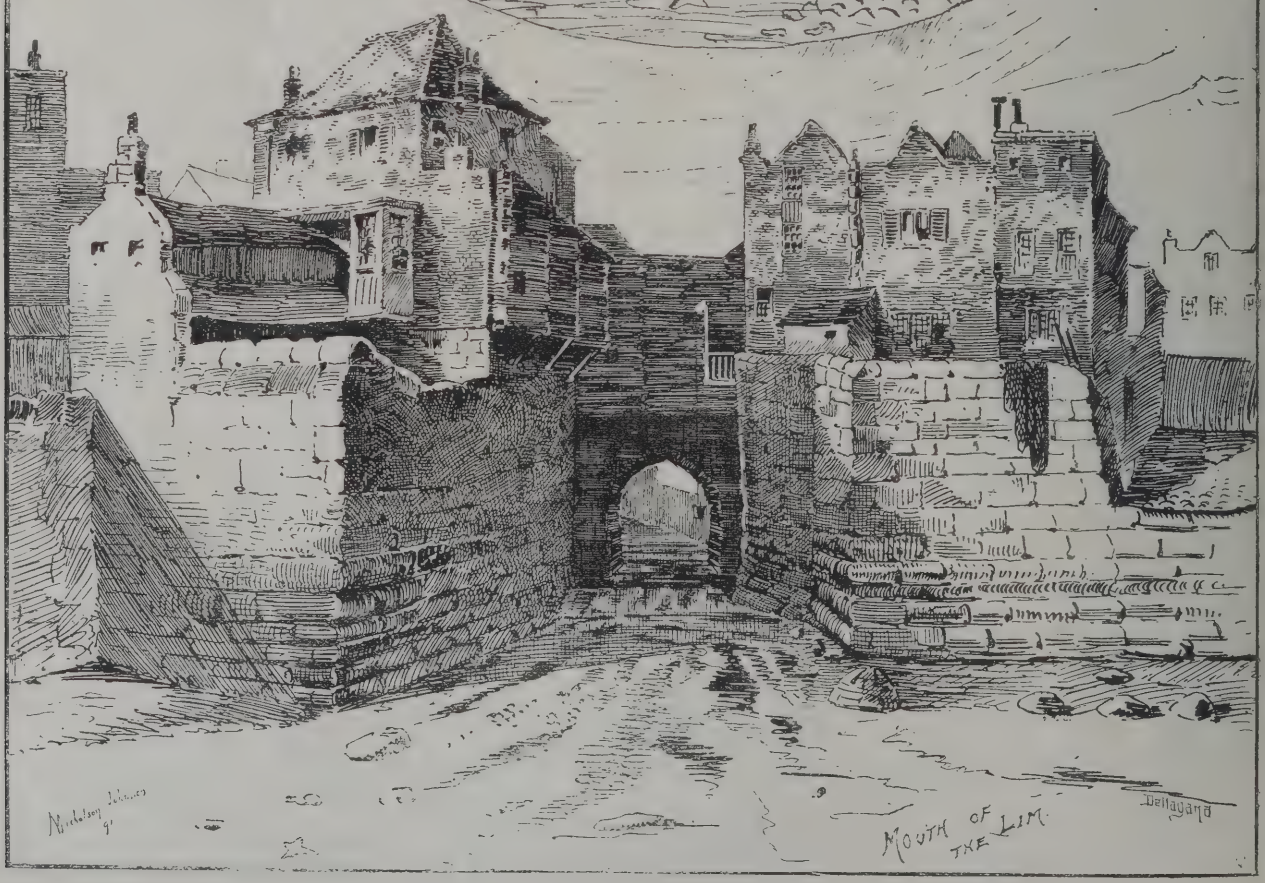
At Drapers' Hall yesterday (Thursday) the freedom of the Fanmakers' Company was formally presented to Lady Charlotte Schrieber, in recognition of her efforts to promote the fan industry. Lady Schrieber has written two large volumes on English and foreign fans, and has handed over her magnificent collection of fans to the South Kensington authorities in trust for the nation.

Sketches from Lyme Regis

by J Nicholson Johnston



THE TOWN HALL AND WALLS



MOUTH OF THE LIM

Bath Municipal Buildings.



Perspective View.

THIRD PREMIATED DESIGN FOR THE BATH MUNICIPAL BUILDINGS.

T. B. Silcock, F.S.I., *Architect.*

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ILLUSTRATIONS.

'OND PREMIATED DESIGN FOR THE NEW TOWN HALL, BATTERSEA.—HOLY CROSS ABBEY, COUNTY TIPPERARY.—NEW CHURCH, HEAP BRIDGE.—THE WEST WINDOW, S. MICHAEL'S CHURCH, NEWCASTLE-ON-TYNE.—ADDITIONS TO GROVE HOUSE, HARROGATE.—FARMSTEAD, STANWAY MANOR, SHROPSHIRE.—SKETCHES FROM LYME REGIS.—THIRD PREMIATED DESIGN FOR BATH MUNICIPAL BUILDINGS.

Our Illustrations.

BATTERSEA TOWN HALL.

We illustrate to-day Mr. H. A. Cheers' design, which the second premium was awarded in his competition. Mr. Mountford's, the selected design, was given by us last week.

HOLY CROSS ABBEY, CO. TIPPERARY.

The Abbey of Holy Cross is beautifully situated on the banks of the river Suir, between Cashel and Thurles, about seven miles from the former and three from the latter. The author of "Monasticon Hibernicon" informs us that "the Abbey was founded in the year 1182, by Donogh Curbragh O'Brien, King of Limerick, in honour of the Holy Cross, St. Mary, and St. Benedict, for the monks of the Cistercian order." Mr. O'Halloran, the antiquarian, states that "this Abbey was erected in honour of a piece of the *True Cross*, which Pope Pascal II. sent as a present to Morough, King of Ireland [father to the above Donogh, and grandson to the famous Brian Boroimhe], in the year 1110." However true the account may be as to the gift of the relic by the Pope, there is every reason to doubt its accuracy as to date. A well-known Irish antiquarian, referring to the foundation of the monastery, observes that, "from the original charter, still in existence, it was founded by Donogh, King of Limerick, as late as 1182, at which time it was richly endowed with lands for its support by the founder, who further ordered that this monastery should have and enjoy all chartered rights, liberties, and freedom, as appears by the record of the 20th of Edward I., A.D. 1320. The above-mentioned charter of King John was confirmed by Henry III., who took this monastery under his protection; again by Richard II., 1395; and, in 1414, James, Earl of Ormond, and the Deputy Thomas le Boteller (or Butler), prior of St. John of Jerusalem, further granted the protection of the Crown to this monastery. Thus protected and fostered by royalty, the Abbey became one of the most magnificent in the kingdom. The lands belonging to it constituting an earldom, its mitred abbot was styled Earl of Holy Cross, and he was usually Vicar-General of the Cistercian order in Ireland." This abbey is stated to have been an offshoot of the Abbey of Maig in the County Limerick, and was afterwards subjected by the Abbot Clairvaux to that of Furness in Lancashire. The same learned antiquarian further adds that "William O'Dywer was the last abbot, and, after the dissolution of the monasteries, Holy Cross, with its appurtenances, was granted by Queen Elizabeth, in 1563, to Gerald, Earl of Ormond, *in capite*, at the annual rent of £15 10s. 4d." It appears from Camden and others that pilgrims of every class used to resort to this abbey, from reverence to the holy relic said to be preserved there; and we are told that, in the year 1559, the famous rebel O'Neill made a pilgrimage to its shrine, as did one of the Desmonds in 1579. The architectural character of the building is remarkably fine, and is considered by many to be one of the best remains of Middle-Pointed work to be found in Ireland. The abbey church is cruciform in plan, and consists of chancel, choir, nave, north and south transepts (with two chapels opening off each of the latter), aisles to choir and nave, and lofty tower at the intersection of the cross. The monastic buildings on the south side covered a considerable area, but they are for the most part very ruinous and dilapidated, and completely enmantled in ivy. The chancel is 23ft. 9in. long, 23ft. wide, and about 28ft. in height, having groined roof with moulded ribs, some of which rise diagonally from the sides and angles, and finish on gracefully-pointed corbels. The east window is a four-light one, with running flamboyant tracery, of a not uncommon design. Similar tracery may be found in Holyrood (or Cross), Scotland, Patrick Brompton, Yorkshire, and other churches. Under the east window, and about 1ft. from wall, are the remains of one of those old stone high altars, so frequently found in the abbey churches in this country; it is 10ft. long, 3ft. 6in. broad, and about 3ft. high. Over the chancel was a room, formed of necessity between the curved stone roof of chancel and the roof timbers; this may have been used as a dormitory—a not uncommon occurrence in ancient Irish abbeys. Upon referring to the east elevation it may be seen that there was a curious and novel passage on the east elevation, over the chancel window, about 1ft. 9in. wide, supported upon arches resting on corbels, and projecting about 9in. from outside face of wall. The plan of tower is a parallelogram, 23ft. by 13ft. 6in., and is supported on four Pointed arches, having similar groining to that of chancel, and rises to a height of 58ft. 9in., and is ascended by means of a small circular stone stair in N.E. angle, from level of room over chancel. The choir appeared to have been carried westward of the central tower for about 31ft., where a gable, rising the whole height of the building, separated the choir from the nave. The dividing wall and arches bear every appearance of a later date, which would suggest that the choir had been extended beyond its original proportions. The nave, or portion westward of the wall and arch just mentioned, is 22ft. 9in. wide, 60ft. 6in. long, bays on each side with Pointed arches. The principal entrance was from a door in the west end, and under the large west window, which is of much more recent date than the gable. The north aisle was lighted by four windows of a decided Late Perpendicular character, which would suggest that this portion is of much more recent date than the other. However, the windows throughout the building have evidently been so altered from time to time, to suit the various changes in styles which have taken place since the foundation of the abbey, that they give very little clue to the date of the structure in which they are inserted. The south aisle is without windows, except one in west gable. A door at either end, one of which is of a Norman character, leads into the monastery ground. These doors originally opened into a cloister, for the "Monasticon Hibernicon" informs us that a certain abbot built one adjacent to this aisle, but not a vestige of it now remains. The south transept, like the choir, nave, and aisles, was without groining. A flight of steps, rising on west wall of this transept, led to dormitories and other monastic rooms. Under these steps is a secret underground passage. Opening off south transept are two chapels, each about 10ft. 6in. by 8ft., with arched and groined ceiling, corresponding with those over chancel and tower. Between these chapels is a space formed by a double row of pointed arches, supported on twisted pillars, about 2ft. 6in. from centre to centre. This space is supposed to have been used for the purpose of "waking" the bodies of departed monks. This is a curious and interesting architectural feature which is not to be found in any other monastic ruin in this country. Over these chapels is a dormitory, with small window looking to transept, and two similar openings to the east elevation. These latter are not visible from the outside, being completely enveloped in ivy. The north transept has a groined roof of similar character to those of church and tower, though differing slightly in design from either. Opening off same are two other chapels, each about 12ft. by 9ft., with a groined roof and moulded ribs as on south chapels. Over these was a dormitory, corresponding with that over south side, and was approached by means of a small winding stone stair, constructed in the thickness of the wall in N.E. angle of north transept. The difference of the work in this monastery is very remarkable. Nothing could have been more highly finished than the chancel, tower, north transept, and adjacent chapels, which are all built of black marble and limestone; and in many cases these portions are in such good preservation, and are constructed of such durable materials, that the mouldings are as sharp and fresh as when executed, and in many places still bear the mark of the mason's chisel. But while the more sacred portions of the building were so well cared for, the remaining parts were strangely the reverse, being generally of the rudest and roughest rubble masonry; and yet a gracefulness of outline and a rustic simplicity pervade these weather-beaten and ivy-clad old walls, from which not even the coarseness of the materials nor the rudeness of the workmanship can in the least detract.

Samuel P. Close, Belfast.

DESIGN FOR CHURCH AT HEAP BRIDGE.

The original drawing, which was exhibited at the Royal Academy this year, was submitted in the competition for this church and placed second. It will be seen that simplicity and quaintness are its chief characteristics, and its suitability for a hilly site, such as the one it was intended for, may also be noticed. The seating accommodation is 330. The design is by Messrs. Preston and Vaughan, of Diocesan Chambers, Manchester.

WEST WINDOW, ST. MICHAEL'S, NEWCASTLE-ON-TYNE.

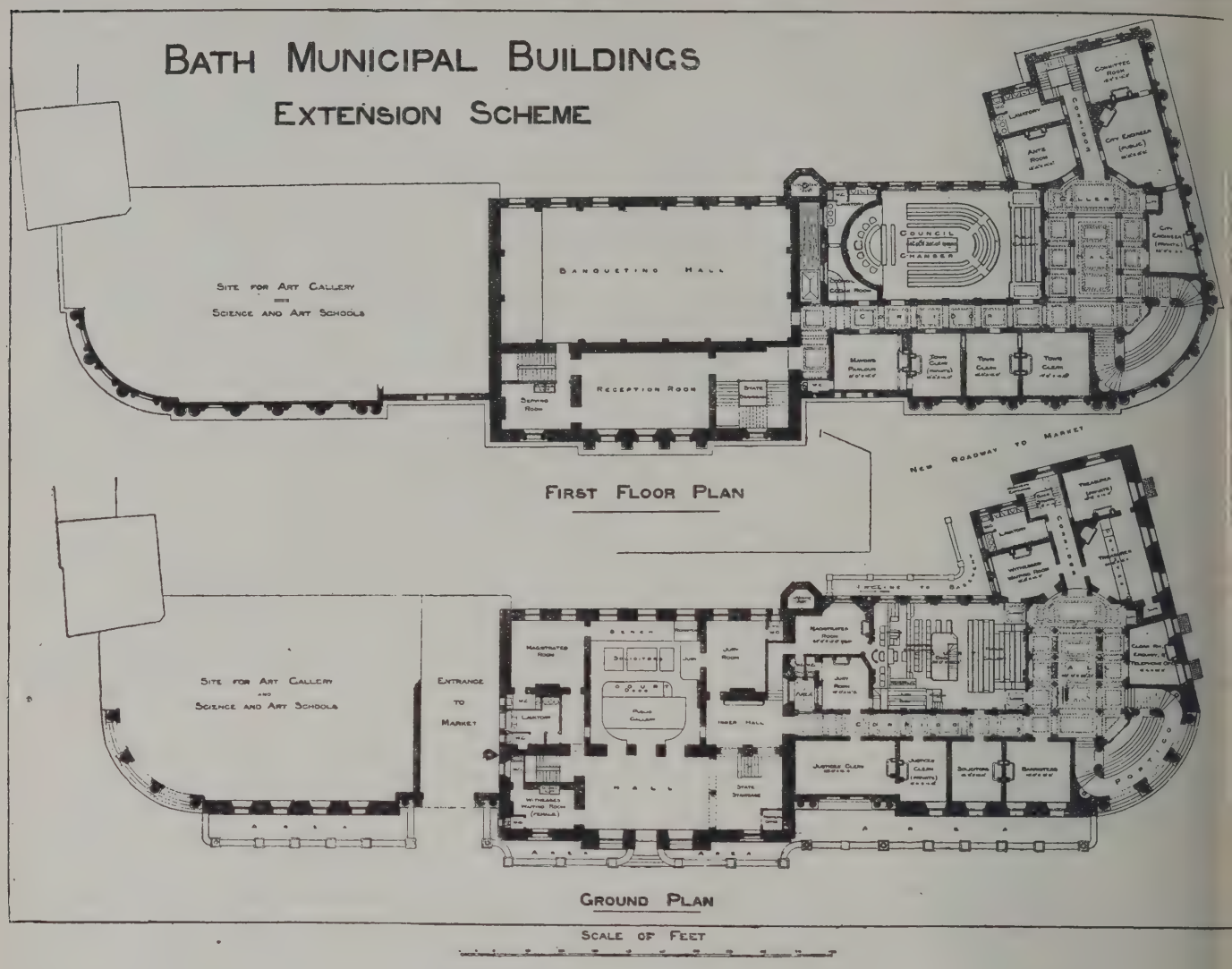
The subject of the window illustrated is "The Parable of the Sower," which runs through the entire four upper lights. In the first is the figure of Christ, garbed in ruby and white, emblematic of purity and divine love, in the act of sowing the good seed. In the two centre openings is a group of angels, clothed in white draperies with rich golden diapers, bearing sickles in their hands, and descending through the heavens to the corn-crowned earth which lies beneath them bathed in radiant sunshine. In the sinister light is an angel of surpassing beauty and sweetness, in a robe of olive-green, with an overcloak of white diapered in gold, leading a young child to the gates of paradise. Along the base of the group run the texts, "He that soweth the good seed is the Son of Man," "The harvest is the end of the world, and the reapers are the Angels." In the lower lights are represented four individual subjects—viz., "Christ changing the Water into Wine," "Christ blessing little Children," "The Agony in the Garden," and "Christ meeting His Mother on the way to Calvary." The tracery is filled with an angelic host, bearing scrolls and emblems. The work is from the studio of Messrs. Atkinson Brothers, Newcastle-upon-Tyne. Messrs. Dunn, Hansom, and Dunn are the architects.

GROVE HOUSE, HARROGATE.

The illustrations, which are from drawings which were exhibited in this year's Royal Academy, show the additions which have recently been made to the residence of Mr. Samson Fox. Mr. T. Butler Wilson, of Leeds and Harrogate, is the architect.

FARMSTEAD, STANWAY MANOR, SHROPSHIRE.

These farm buildings have recently been erected for Mr. F. W. Webb, the eminent and well-known railway engineer, on his estate at Stanway Manor, near Rushbury. The chief object in the design has been to economise labour and to provide premises as perfect as possible for their purpose. The general arrangement of the buildings will be seen from the accompanying plan and bird's-eye perspective view. The covered yards are a feature in the design, and are now acknowledged by all practical farmers to be very desirable for the health of the stock and for the increased quality of the manure. The yards are covered with 1in. red deal boards, soaked before fixing in a solution of creosote, and placed with $\frac{1}{8}$in. spaces between the boards. Each board is grooved on the top side near both edges, the grooves serving to convey the rainwater to the eaves gutter. The open spaces between the



boards allow for ample ventilation of the yards, and owing to the upward draught through the spaces, very little water finds its way through. The non-conducting quality of wood secures a much more even temperature in the yards than would be the case if either slate or corrugated iron were used for the covering. An 8-horse steam-engine provides the power for preparing the food, and serves to drive the threshing machine which stands in the barn alongside the stackyard. The engine is also used to saw the wood used on the estate. Great care has been taken to provide against rats and other vermin, there being no ceilings or hollow walls, and the floors are concreted under the paving. Tramway-lines are laid from the food-mixing house along the main feeding passages. The walls are built of brick, and the roofs, with the exception of the covered yards and stack stands, are of red tiles, the ridges being specially ventilated. The timber used throughout is red deal. The necessary accommodation is provided for a farm of 500 acres, and includes for about 100 head of horned cattle, 9 horses, and 20 pigs. The fittings throughout are of iron, and were supplied by Messrs. Musgrave and Co., of Dublin. The works have been carried out by Mr. J. Gethin, builder, of Shrewsbury, from the designs and under the direction of Mr. John Brooke, A.R.I.B.A., architect, of Manchester.

SKETCHES AT LYME REGIS.

Lyme is an interesting little town in Dorsetshire, on the sea at the deepest part of the Great West Bay, whose extreme points are Portland Bill and the Start. It is charmingly unconventual and old-fashioned. Perhaps the seven miles of road between it and Axminster, the nearest railway station, have kept it behind the times. Long may it remain so. It was in a flourishing condition in the time of Edward IV., for it furnished four ships and 62 marines at the Siege of Calais. It sustained a severe siege during the Civil Wars, being garrisoned by Parliamentarians and besieged by troops under Prince Maurice from the 20th April to 16th June, 1644. Lyme became famous in 1685 as the landing place of the Duke of Monmouth. One of the principal features of the place is the Cobb, a small harbour which gives shelter to fishing vessels and yachts. It is of great antiquity, but has changed its shape many times, having been rebuilt from time to time. The town takes its name from the small river which finds an outlet into the sea under the picturesque archway shown in the sketch. This archway is also of great antiquity. Right and left of the mouth of this stream stretch the old sea-walls, and the comparatively new town hall makes a picturesque crowning feature. At the back of the town, and round the sweep of the bay, the ground rises in natural terraced slopes to a great height. On one side the famous landslip, in summer gorgeous in colour, when gorse and heather and wild flowers heighten its wild beauty. Seen from the sea on a hot summer's day, with a perfectly blue sky overhead, and a sea as blue as the sky, Lyme Regis and its surroundings has an old-fashioned, peaceful beauty of its own, and rejoicing that the railway (and the cheap tripper) are seven miles off, one hopes that they may remain there.

J. Nicholson Johnston.

THIRD PREMIATED DESIGN FOR THE BATH MUNICIPAL BUILDINGS.

Thanks to the courtesy of the architect, Mr. T. B. Silcock, F.S.I., we are enabled this week to give a perspective view and plans of the design to which the third premium has been awarded in the competition for the new municipal buildings at Bath. A description of the design will be found elsewhere, in our review of the competition. We shall give the first and second premiated designs shortly.

The portrait of Sir Henry Watson, of Sheffield, by Mr. Herman Herkomer, which it is proposed to present to the Cutlers' Company, has been completed. The sum subscribed amounts to £570.

CHIPS.

The funeral of the late Mr. W. A. Goss, builde and contractor, of Torquay, took place on Wednes day week at Torquay Cemetery. The funeral pro cession was headed by members of the local lodge o Freemasons, of which deceased was the olde member at the time of his death; the carriage numbering 21, followed. Mr. Goss erected severa large public buildings and villa residences i Torquay. He had also taken an active part i public affairs, and was a member of the Local Boar from 1860 to 1866. Mr. Goss, who leaves a widow two daughters, and three sons, was 61 years of ag

The Adelphi Hotel at Liverpool, adjoining th Midland Central Station, was reopened on Saturda after having been remodelled, from plans by M C. Trubshaw, the architect to the Midland Railwa Company.

The death is announced from Landport of M James Hunter in his eighty-fourth year. Th deceased was apprenticed to Mr. Chubb, the founde of the well-known firm of lockmakers of Londo and Wolverhampton, and for many years wa manager of Messrs. Chubb's works at Wolver hampton. In 1850 he was presented with a silve medal for making some of the smallest locks pro duced at that time.

The city council of Amsterdam has granted subsidy of £41,000 towards the building of a ne art gallery, which will be erected at the back o the State Museum, built eight years ago from th designs of Mr. P. J. H. Cuypers. A donation fo the same object, amounting to £12,500, has bee received from the Van Eeghen family. All furthe expense incurred will be borne by the city treasury

The sanitation of Wellington College, and th cause of the development of the epidemic of throa affection which has lately occurred there, have bee placed in the hands of a commission composed o Mr. Baldwin Latham, C.E.; Mr. Rogers Field C.E.; Dr. Bristowe, F.R.S.; and Dr. Woodforde the county medical officer of health.

The partnership between H. Lee, E. H. Lee, an A. Grace, under the style of H. and E. Lee, War wick-street, Regent-street, W., and Great Church street, Hammersmith, builders and contractors, ha been dissolved.

WAYSIDE NOTES.

COMPETITIONS are not plentiful just now, and I should imagine that competing architects are rather "slack." There has been no plethora of advertisements lately, and what work of this kind has been offered to the profession has not been of a very extensive character. The new technical and public library required by the corporation of Darwen will, therefore, be welcomed as a competition of some moment, and promising well. Those who have followed the course of events of late will have endeavoured to qualify themselves for competitions for buildings of this nature. New arrangements for the promotion of technical education must shortly give a yet greater impetus to the building of the requisite institutes and colleges.

In addition to a demand for technical institutes in the provinces, there may be, in the near future, a "boom" in village-hall building. Politicians are just now concerned—of course, in a *wholly disinterested way*—about the entertainment and recreations of dwellers in villages and the rural population generally, and I see that the suggestion was made at the recent meeting of agricultural labourers at the Memorial Hall, Farringdon-street, that "the village hall" would be an institution likely to render the leisure hours of the rural labouring population more enjoyable. Without being deceived by the arguments of vote-hunting politicians, who say much about the agricultural labourer that must cause this worthy gentleman to laugh in his sleeve, we may yet believe that the village hall is an admirable institution, and worthy of every effort to advance and promote its usefulness. If, therefore, the "progressive" party should successfully bring a Bill into Parliament providing for the erection of village halls, to be maintained, say, by a tax on the ground-landlords of London, or to be built and equipped—including a new set of billiard balls once a year—at the sole expense of the village squire, the architectural profession would do well to turn their attention to this branch of design.

A "Constant Reader" sends me a cutting from one of the Brighton papers with an advertisement of the Guardians of the parish of Brighton respecting their competition for new public offices for the transaction of poor-law business. The invitation to compete was addressed only to Brighton architects, and "terms" were demanded. Touching which, "Constant Reader" writes: "The difference between our corporate bodies is refreshing. The school board and the corporation have decided to insert in all their contracts a clause similar to the London County Council, viz., that the workmen shall be paid the standard rate of wages, &c. The guardians, on the contrary, are, by asking for terms, endeavouring to reduce the standard rate of wages for the architects. Thus the uneducated (or only partially educated) workman is to be protected, and the educated architect is to have his wages lowered by competing against another. They (the guardians) seem to forget that cheap work, and more especially cheap professional work, is, as a rule, bad."

The Brighton authorities are certainly inconsistent. The poor architect wants protecting as much as the workman. But "Constant Reader" must not look for consistency; he should remember, too, that this is the age of the "working man." Few people, moreover, seem to grasp the truth of the principle expressed in the saying that "work done for nothing is worth what it is done for." I think that there is one point about things pertaining to an architect's business on which all who may differ on other questions will agree, viz., that it is impossible to reduce the amount of remuneration received for architectural work without rendering such work unprofitable, especially in cases where much elaborate detail draughtsmanship is required. Some few clients may see that this is the truth; but the mass of the public cannot appreciate the point. They, therefore, would believe that the amount of remuneration for architects might safely be reduced, and this being the case, I re-urge what I have often said, that it is of vital importance to maintain *by our own endeavours* the present standards. Thus, if the Brighton architects had stood firm, and all refused the work offered except on the recognised scale of charges for professional assistance, a decided blow would have been dealt to an enemy who is very insidiously creeping up in the rear. I do not know what resulted from the advertisement my correspondent alludes to; but can hardly hope that there was enough backbone at Brighton to refuse the work, except on the usual terms.

Replying to Sir J. C. Robinson's letter respecting the old grammar-school buildings, the town clerk of Totnes has written that the school has been altered and reconstructed so often that no part of the original building now remains. In the cellars, however, are remains of the old town wall, and these remains are to be preserved under the new scheme for building police offices. Moreover, the present buildings of the grammar school are not to be wholly pulled down; but the offices will be arranged in the old building, the scheme being one rather of adaptation than reconstruction.

A paragraph in Monday's papers described an interesting discovery during the restoration works at Crowland Abbey. In the course of the removal of a decayed stone, it was discovered that the walls between certain buttresses were mere casings and covered an older wall, which, being laid bare, appears to have been part of the original building dedicated to St. Martin. All will be glad te hear that the works at old Crowland have been carried forward most satisfactorily. The tower, it is said, is now safe from its very foundations, which seem to have been underpinned. The arches under the spire have been made secure, and the spiral staircase, the porch, and the king's chamber restored. The Rev. T. H. Le Bœuf, the rector, who has been so enthusiastic in his work, is now about to undertake the preservation of the bell-chamber. Then, when this is finished, the Early English doorway opening into the nave, with its interesting legendary sculptures, will receive attention. This last work, it is said, is of a pressing character, as the effects of rain and frost will, if not soon arrested, "obliterate every trace of one of the most remarkable relics of ecclesiastical art in the country."

Grand old Bicker Church, Lincolnshire, is to be restored, if sufficient funds are forthcoming. A movement for the work is on foot, and subscriptions have been promised.

Mr. White's paper on "The Architect and His Artists" seems to me to be a most practical contribution to many of the vexed questions of the day. What does the artist-architect say to only receiving 2 per cent., and letting the other 3 per cent. go to the constructional engineer and the building surveyor? I rather think that this sort of suggestion is calculated to arouse those falling into a morbid condition, and blindly worshipping high architecture. Mr. White's arguments as to the question of provisional amounts are also unanswerable, at least as regards the majority of cases. Where the provisional amount is not inserted, merely to save the architect troubling about details, and is paid to some specialist whose assistance is absolutely indispensable, then it is in all ways justified. A provisional amount for ironwork is not justified, because an architect should, in these days, be himself an accomplished constructor in iron and steel. If otherwise, he is incompetent to deal with the material of the age. A provisional amount for the supply of a steam-engine is another matter. The architect is not in any sense of the word a mechanician. A provisional amount for an expensive set of machinery for, say, baths, is again another thing. If competent, the architect will know what machinery, boiler, engines, &c., is required, and be able to specify details himself, thus saving the labour of another brain and consequent expense to the client. It is a grand general rule I think to have no provisional amounts in a bill of quantities, unless it is *absolutely* necessary. Every provisional sum means increased relative expense to the client, and has other objections. Many doubtless provide these sums, so that they may be sure that certain goods are supplied and fixed, but this is a feeble arrangement. Specify something, and —as the advertisements say—"see that you get it." Those who have not the strength of mind and power of moral persuasion to see their specifiation duly honoured, are not worthy of the designation, "architect"—art, craft, or otherwise.

GOTH.

Engineering Notes.

SOCIETY OF ENGINEERS.—The thirty-seventh annual general meeting of the Society of Engineers was held on Monday last at the rooms of the Society, 17, Victoria-street, Westminster, S.W. The chair was occupied by Mr. William Newby Colam, president. The following gentlemen were duly elected by ballot as the council and officers for 1892, viz.:—As president, Mr. Joseph William Wilson, Jun.: as vice-presidents, Messrs. William Andrew Valon, George A. Goodwin, and Chris. Anderson; as other members of council, Messrs. R. W. Peregrine Birch, Charles Claude Carpenter, Henry Faija, Charles Gandon, Charles Nicholson Lailey, Thomas Bell Lightfoot, William George Peirce, and Arthur Rigg; as hon. secretary and treasurer, Mr. Alfred Williams; as hon. auditor, Mr. Alfred Lass (Messrs. A. Lass and Co.) —The annual dinner was given at the Holborn Restaurant, on Wednesday evening, December 16th. The president, Mr. W. N. Colam, occupied the chair, and amongst a large company present were the Right Hon. Sir Lyon Playfair, K.C.B., M.P., Sir Robert Rawlinson, K.C.B., and Mr. W. H. M. Christie, M.A., F.R.S. (hon. members), General Webber, C.B., Mr. T. de Courcy Meade (President of the Incorporated Association of Municipal and County Engineers), Mr. W. Worby Beaumont, Mr. J. W. Wilson, jun. (president elect), Mr. W. A. Valon (vice-president), Mr. Henry Adams, Mr. Jabez Church, Mr. Chas. Gandon, Mr. Perry F. Nursey, and A. T. Walmisley (past presidents), Mr. Chris. Anderson, Mr. R. W. Peregrine Birch, Mr. C. C. Carpenter, and Mr. H. Faija (members of council), Mr. Alfred Williams (hon. secretary and treasurer), and Mr. G. A. Pryce Cuxson (secretary). The loyal and patriotic toasts usual on such occasions having been proposed and honoured, the toast of the evening, "Success to the Society of Engineers," was proposed in felicitous terms by Sir Lyon Playfair, who coupled with it the names of the president, the hon. secretary and treasurer, and the secretary. The President, in the course of his reply, said he thought that the ever-increasing success of the Society of Engineers was mainly due to the care bestowed in the selection of papers read, and the opportunities given to the younger members of the profession to take part in the discussion; to the summer visits of members to works of engineering interest, at which opinions were freely exchanged with great mutual benefit; to the honorary secretary and treasurer, Mr. Alfred Williams, whose long experience, commonsense, and watchfulness were invaluable; and, lastly, to the energy and tact of the secretary, Mr. Pryce-Cuxson. During the last year, he was glad to be able to say, the increase of membership had been about 8 per cent, and the attendance at meetings about 5 per cent. The visits during the past summer vacation had been very popular, as evinced by the unusually large attendances. He felt he could hardly too strongly impress upon the minds of the younger members the importance of attending such meetings. The vacancy amongst their honorary members occasioned by the lamented death of Earl Granville had been filled by the election of Sir George Berkeley Bruce.

The parish church of Great Plumstead, near Norwich, was entirely destroyed by fire on Tuesday morning, and is now a mass of ruins. The church, which was insured in the Norwich Union Office, was restored in 1876, the nave by voluntary subscription, and the chancel by the Ecclesiastical Commissioners.

The City Commission of Sewers have adopted an amended plan for completing the improvement of Ludgate-hill near St. Paul's-churchyard, and an arrangement for settling the claims of the freeholders and leaseholders, the former on the principle of give and take, and the latter by payment to Messrs. Howell of £36,000.

The students of the building construction class in connection with the Halifax Mechanics' Institute paid a visit to the extensive works of Messrs. Oates and Green, fireclay and sanitary tube makers, at Horley Green and Beacon Hill-road, on Thursday week. The visit was very much enjoyed by the students, who took a deep interest in the explanation made by Mr. Oates. On the motion of Mr. Goldthorpe, the teacher of the class, seconded by Mr. Bentley, the teacher of the machine-drawing class, Mr. Oates was thanked for his kindness.

Building Intelligence.

Dublin.—The new offices of the Ulster Bank in College-green were opened for business on Monday. The architect was Mr. Thomas Drew, R.H.A., the works being superintended by his assistant, Mr. R. C. Orpen, and the contractors were Messrs. Samuel H. Bolton and Sons, of Dublin and Rathmines. The building is Classic Renaissance in style, the front being divided into three bays by columns of the Roman Ionic order, raised on a basement level 25ft. high. The building is constructed of Irish materials, the facing stone being from the Ballinasloe quarries, and the dadoes and internal columns being of red marble from Cork, while Irish oak is employed for doors and panelling. The cash office is 78ft. by 40ft., and beneath it are the strong rooms and safes. The fittings in the office, which is lighted by a glass dome, are of mahogany, carved by Messrs. Hems and Sons, of Exeter, and the wrought-iron grilles and panels throughout the building were executed by Messrs. Singer, of Frome. Mr. Sharp, of Brunswick-street, executed the stone carving, and the hydraulic lifts have been supplied by the American Elevator Co.

Leeds.—A new Wesleyan Sunday-school in Dewsbury-road was opened on Saturday. The site adjoins that of the chapel, built in 1888, and the architect for both is Mr. G. F. Danby, of Leeds. The buildings consist of a central assembly-room 65ft. by 35ft., seating 500 persons, with recessed platform at one end, and open-timbered roof 25ft. high to the ceiling. The room is lighted by large windows at each end, and by clerestory windows at the sides, filled in with tinted leaded lights. On either side of the assembly-room, and entered therefrom, are eight classrooms of various sizes; also a church parlour 29ft. by 18ft., and 15ft. high, with dressed and varnished roof and fireplace. At the rear of the school an infants' room accommodating 150 is placed, with raised gallery at one end. In the basement three additional classrooms, kitchen, apparatus room, and offices are arranged. All of the classrooms are fitted with electric bells, worked from the superintendent's desk. In addition to open fireplaces in several of the rooms, each room is warmed on the low-pressure hot-water system. The building is of pressed bricks, with stone dressings to harmonise with the adjoining chapel. The interior woodwork is of pitch pine, varnished. The work has been carried out by Messrs. P. Rhodes, T. Harrod, and J. Lindley. The cost of site, building, and furnishing has been £3,500.

CHIPS.

New classrooms in connection with Bunyan Meeting Sunday-school, Bedford, were opened by the Mayor of Bedford (Dr. Coombs, J.P.) on Thursday last, Dec. 10. The works have been carried out from the designs and under the superintendence of Messrs. Usher and Anthony, of Bedford, the architects, by the contractor, Mr. J. P. White, at a cost of about £1,300.

In connection with the architectural section of the Glasgow Philosophical Society, Mr. Alexander M'Ara read a paper to the members on Monday night on "Limes and Cements," with experimental tests.

The death is announced at Beaumaris, in his 78th year, of Sir Andrew Crombie Ramsay, LL.D., F.R.S., late Director General of Her Majesty's Geological Survey of the United Kingdom. Sir Andrew, who was president of the Geological Society in 1862-3, was the author of several works on geology and physical geography.

A meeting of the Civil and Mechanical Engineers' Society was held on Wednesday evening at the Westminster Palace Hotel, when the president-elect, Mr. A. A. Myall, A.M.Inst.C.E., read his inaugural address.

The joint present to the King and Queen of Denmark to be made by the Royal families of England, Russia, and Greece, on the occasion of their golden wedding, will take the form of a group of sculpture by the Danish artist Husselrüs, which will ultimately be placed in one of the public squares of Copenhagen. The plans have already been prepared. On a granite pedestal will be a bronze figure representing Denmark, surrounded by three bronze lions bearing the shields of the Royal houses of England, Russia, and Greece. Around the pedestal will be bronze medallions and portraits of the 51 children and grandchildren of the Royal couple.

COMPETITIONS.

Glasgow.—Mr. Waterhouse, R.A., has been engaged for the past few days in an examination of the competitive plans for the proposed museum, art gallery, and school of music about to be erected in Glasgow. The cost of the buildings is estimated at from £100,000 to £150,000, and under the conditions the designs were to be of such a character as to admit of extension to meet the growing requirements of the city. Sixty sets of plans were sent in, and the following short list has been selected:—Messrs. Malcolm Stark and Rowntree, Glasgow; Thomas M. Deane, of Sir Thomas N. Deane and Sons, Dublin; Treadwell and Martin, Pall-mall, London; John W. Simpson and E. J. Milner Allen, New Inn, Strand, London; John Honeyman and Keppie, Glasgow, two designs. The names are arranged in the order in which they stood on the list, not in the order of merit. The design of Messrs. Malcolm Stark and Frederick Rowntree is Classic in treatment, a feature being the central hall, which dominates the group of buildings from every point. Of Messrs. Honeyman and Keppie's designs, one is a free adaptation of Early French Renaissance, the other being severely Classic; in both the large hall occupies a central place, the museum being located to the east, and the school of art and picture-galleries to the west. A second competition will take place among the selected candidates, and the final decision is expected to be given by the month of March. The nucleus of the fund consisted of £48,000, the surplus from the late International Exhibition, in addition to which a sum of £53,000 has been subscribed.

Oswestry Municipal Buildings.—The last scene in this curiously-managed competition has just been reached, the town council having agreed to vote Mr. H. A. Cheers, of Twickenham, £300, which he has accepted "in full discharge of all claims." It will be remembered that the town council promoted a year ago a competition for plans for new municipal buildings, Mr. T. M. Lockwood, F.R.I.B.A., of Chester, being appointed as professional referee. Designs were duly received and adjudicated upon, and that by Mr. Cheers was selected, and was published in our issue of the 3rd January last. When tenders were obtained it was found that the cost would exceed by some £2,000 the stipulated outlay. It was ultimately decided that Mr. Bolton, the borough surveyor, should carry out the work according to Mr. Cheers's competition plans as modified under the supervision of Mr. Lockwood as consulting architect. Mr. Lockwood has since arranged to accept three hundred guineas from the town council, for which sum, it was stated, "he will undertake the preparation of drawings, specifications, and details, and will superintend the work of erection."

Oxford.—The five designs which Mr. Colcutt, the professional referee, has chosen for the final competition for the Oxford Municipal Buildings, out of the 135 designs sent in, have, we understand, been accepted by the town council. We are not at liberty to publish the accepted names at present.

In the course of the demolition of the remains of the ancient church of St. Martin's-le-Grande at Dover, on Saturday, the workmen came upon two chalk graves. Both contained human remains; and in one of the graves a beautifully wrought silver chalice and paten were found. The church of St. Martin's-le-Grande was built in the early part of the 7th century, on the foundation of older Roman baths.

The death is announced from Cairo of Emile Bayard, the distinguished French painter. Born at Ferté-sous-Jouarre in 1837, he had barely reached his 54th year; but twenty years ago he was named a Chevalier of the Legion of Honour, and promoted to the degree of officer in 1889. His best-known work is perhaps "Une Affaire d'Honneur" (1884). But his fame will mainly rest on his power as a book illustrator.

At Monday's meeting of the town council of Shrewsbury it was decided to adopt a revision of the accepted plans by Mr. J. Johnson, of Queen-Victoria-street, E.C., for the new public baths, which will effect a saving of £500 in the cost of erection, and diminish the cost of subsequent management. The first-class swimming-bath will be reduced in area to 2,250ft., and the second-class enlarged to 2,700ft., both being 30ft. wide. Private baths for both sexes will also be provided. The cost is now estimated at £6,500 with the alterations agreed upon.

ARCHITECTURAL & ARCHÆOLOGICAL SOCIETIES.

Birmingham Master Builders' Association.—The annual dinner of the Master Builders' Association took place on Thursday evening in last week at the Grand Hotel, Colmore-row. Mr. C. H. Barnsley, president, occupied the chair. Mr. J. J. Moffat, vice-chairman, in proposing "The City and Trade of Birmingham," said he was afraid they could not just now congratulate themselves on the state of trade in Birmingham. Mr. C. H. Barnsley proposed "The Birmingham Master Builders' Association," and expressed the opinion that the state of trade to-day was far more satisfactory than it had been for some time. It might be that more work had been the builder's lot, though he feared the scale of prices had brought very little margin of profit. He thought there should be a desire with them, as a trade, to obtain better prices. In connection with the association it had been arranged that the offices should be open for intercourse between the members of the trade, and the meetings would be of a social character. Mr. T. Rowbotham proposed the toast of "The National Master Builders' Association," to which County Councillor J. Bowen responded. Mr. Alfred Smith proposed the toast of "The President," to which Mr. Barnsley replied.

Carlisle Architectural, Engineering, and Surveying Association.—This association, which was formed some short time ago in the city of Carlisle, promises to become a successful and important body in the city if the interest and energy be continued with which it has started. The meetings are held fortnightly in the Town Hall, and on Tuesday week last the members listened to an interesting and instructive paper by Mr. H. Higginson, architect, of that city, illustrated by the oxyhydrogen limelight, the subject being "With the Society of Architects in Belgium." The inaugural address was given on Oct. 20 by the city engineer and surveyor, Mr. W. Howard Smith, A.M.Inst.C.E., and since that papers on the following subjects have been given, viz.:—"Cremation Considered Generally" and "The Heavier Class of Lifting Machinery and Computation of Strains." The papers yet to be given are:—"Sewerage and Sewage Disposal," "Rational Building," "Road and Street Formation," "Girder Work and Strains," "The City Building By-laws," "Gasholder Construction," and "The Sanitary Arrangements of Public and Private Buildings."

Cardiff Master Builders' Association.—The annual general meeting of the members of the Cardiff Master Builders' Association was held at the Angel Hotel on Wednesday evening week. There was a large attendance, the chair being occupied by Alderman David Jones. The report and balance-sheet for the year were presented and passed. They showed a satisfactory state of affairs, and gratification was expressed at the strength of the association, which now numbers close upon 50. Alderman David Jones was re-elected president, Mr. F. S. Lock vice-president, and Mr. S. Shepton hon. treasurer. The retiring members of the committee were also reappointed.

Manchester Architectural Association.—Owing to the fusion of this association with the Manchester Society of Architects, the members met together at dinner for the last time at the Grosvenor Hotel, Manchester, on Tuesday, the president, Mr. T. Chadwick, A.R.I.B.A., in the chair. The toast of "The Royal Institute of British Architects" was proposed by Mr. J. S. Hodgson, and responded to on behalf of the Institute by Mr. Lawrence Booth, F.R.I.B.A. Testimonials were then presented by the chairman to Mr. A. H. Davies-Colley, A.R.I.B.A., and Mr. J. D. Mould, A.R.I.B.A., on behalf of the members of the association. Mr. Davies-Colley has been treasurer of the association ever since its formation (a period extending over 16 years), and Mr. Mould has acted as hon. sec. for the past six years. The healths of both gentlemen were given with musical honours, and they responded. The toast of "The Past Officers of the Association" was proposed by Mr. T. Cook, and responded to by Mr. Frank W. Mee. "The Success of the Newly-constructed Manchester Society of Architects" was proposed by Mr. A. H. Davies-Colley, and responded to by Mr. P. E. Barker, A.R.I.B.A. The toast of "The Chairman" was then given, and the proceedings terminated.

TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

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SITUATIONS.

The charge for advertisements for "Situations Vacant" or "Situations Wanted" is ONE SHILLING for TWENTY-FOUR WORDS, and SIXPENCE for every eight words after. *All Situation Advertisements must be prepaid.*

Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page advertisements and alterations in serial advertisements must reach the office by Tuesday Morning to secure insertion.

NOTICE.

Bound volumes should be ordered early (price Twelve Shillings each), as only a limited number are done up. A few bound volumes of Vols. XL., XLI., XLVI., XLIX., L., LI., LIII., LIV., LVIII., LIX., and LX. may still be had, price Twelve Shillings; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

CHRISTMAS DAY.

CHRISTMAS DAY falling this year on Friday, it will be necessary to publish the BUILDING NEWS on Thursday, Dec. 24. All advertisements for the next number must therefore reach the office by 3 p.m. on WEDNESDAY next, instead of by 3 p.m. on Thursday, as usual.

The New Year's Double No.—It is respectfully intimated that all the space available for extra advertisements in the New Year's Double No. is full, and that no further applications can be entertained.

RECEIVED.—H. B. and T. Co.—J. B.—B. and P.—S. L. B T. and R.—J. W.—S. T.

"BUILDING NEWS" DESIGNING CLUB.

F. C. CALD-BEEK. (Yes, your drawing came in "too late." If you will address your contributions to the office of another journal it is only to be expected that they will meet with such a fate.)—JOHN STONE. (We will give the subject you suggest before long.)—Drawings received from "Cyclist" and "Sphinx."

Correspondence.

THE CRAFTSMAN-ARCHITECT.

To the Editor of the BUILDING NEWS.

SIR,—It was because I was hoping that the Society of Architects would develop into the kind of architects of which the late J. D. Sedding approved that I joined its ranks; but I find the same foolish professionalism there as at the Institute.

I think architects should in every way be encouraged to become builders—there would then be some hope for architecture. A builder known to have a knowledge of architecture, and to be in other respects capable, naturally gets more work than Mr. Buggins, *et hoc genus omne*. The class of people who wish to save the 5 per cent. paid to architects is a pretty large one. These people go direct to a builder. They like to get the art thrown in, so go to a builder who can draw, if they can find one; but these are at present very few and far between. I know of one who was a pupil of a well-known architect, and before succeeding to his father's building business, worked in one or two other offices.

I was wanting this builder friend of mine to become a member of the Society of Architects; but his being a builder was quite enough, and the S.A. would have nothing to do with him. I am pleased to find that builders are developing a knowledge of sanitary matters. This is, no doubt, brought about by the demand for builders with this knowledge.

There is also a demand for better-looking houses, so Mr. B. makes an effort at design. But this is not so easy a matter as acquiring a knowledge of sanitation, and builders will not be successful designers till, after a year at the bench, they spend a couple in an architect's office.

C. F. M.

ROGERS v. JAMES.

SIR,—I should be glad if you will allow me the opportunity of explaining several points in this case, raised in your leading article of this week's issue, and also in the letter signed "M. M."

First, as to the fees charged. I claimed £123 as a balance due to me; the original contract was for £1,900; but during the erection of the buildings many alterations had been made, by the desire of my client, causing a very complicated account of extras and omissions. The total cost of the work was about £2,500. Upon the building I charged 5 per cent., for omissions 2½ per cent., and for small decorative contracts, such as designs for mantels and over-mantels and over-doors, 10 per cent., and for drawing up the final accounts, 2½ per cent., which charge had been agreed upon; also £25 for a first set of designs (finished drawings), payment for which had been promised. The jury awarded me £58; how they arrived at the amount I cannot tell.

The counter-claim was not only for omitted concrete, but for such items as the following: I discovered, upon digging for the cellar, that we were coming to a spring, and I then, without consulting my client, who was absent, ordered the cellar to be carried down a foot less in depth, to escape the water. This was considered, and omitted for in the final accounts. A charge was also made against me for allowing the use of a felt damp-course instead of slate in a small portion of the building.

The whole amount allowed in the contract for concrete and digging was £63. This was only omitted in portions, and where there had been such omissions I allowed £82 for the cost of underpinning.

My final certificate showed a balance due to the contractor of £163. The balance sent in by him was over £700. The contractor's claim was contested, and resulted in a trial in the Court of Queen's Bench, when my final certificate was upheld by my client, and judgment given in his favour. He thus put in his pocket £82 by upholding my certificate.

Now, as to my negligence. When the omission of concrete was discovered, I made a searching examination of the footings, and wherever it had been omitted I found a thickness of from one to two inches that had been spread in the trench. This is a new method of building to me, but I am told that it is not an uncommon one. The architect goes on to the works, he sees concrete being prepared and laid in the trenches; but, in his absence, this thin layer can be spread, and unless he has cause to suspect the bona fides of the contractor or his workmen, and has some of the concrete picked up, he cannot very well detect it. I can understand that this may have been done without the knowledge or consent of the contractor. As you properly remark, the only remedy for this is to employ a clerk of the works.

I am not a member of the R.I.B.A., and have not, during the 25 years I have been in practice, had any reason held out to me that would pursuade me to join that body.—I am, &c.,

FREDK. ROGERS.

HOW LONDON COULD BE CLEARED FROM SOME OF ITS DISCOMFORTS.

SIR,—The fearfully polluted state of the Thames river, after over ten millions of money has been spent in trying to purify it, is still perplexing all thoughtful citizens; also London's smoky, foggy state of air, and unsatisfactory supply of water. Much has been said and written on these serious subjects, but no truly safe and unfailing way of attaining the desired state of the river, air, and water has ever yet been discovered.

I beg humbly to suggest the adoption of one way—indicated by our Almighty Creator's arrangement—put before us for attaining all these objects.

Inasmuch as the tide attains an average of about 38ft. in the Bristol Channel, only about 18ft. at London Bridge, by deepening the Thames to sea-level, through its most eligible branch into the Avon and on to the Bristol Channel, and self-acting flood-gates erected to open by the rising tide and close when the ebb began. By this means a continuous flow of about 10ft. in depth of the Atlantic water (over high water at the Nore) would enter the German Ocean if the inflow at the receiving end and the Channel conveying it to London-bridge are greater than the outflow at the mouth of the Thames. As the water would flow continuously through at the tidal speed of about six miles per hour, all sedimental matter lighter than water would be carried on to the German Ocean within the twenty-four hours, and sand, mud, &c., carried onward, scouring out the bed of the river continuously. And the smokeless Welsh coal being carried on the tide to all the towns, the present smoky atmosphere would be done away with; also all the springs down to the sea level would be laid open on each side, and conveyed by canals or pipes to supply superior blended spring-water to all the inhabitants.

The continual flow down the Thames will prevent the fogs from running up the up-tide, being stayed by the more rapid running outflow of clear Atlantic water, with shoals of fish from sea to sea, with abundance of crumbs from every table to feed them.

Much of the shipping carrying goods would discharge at the wharves where the railways crossed, to be carried to their inland destination; also the beds of building materials found made available for use throughout the valley by the cheap tidal conveyance; also a fair supply of health-giving sea air throughout.—I am, &c.,

PETER LOVE.

18, Ravensbourne-road, Catford, London, S.E.

CHIPS.

The Filey local board have adopted the final arrangements for the new sea wall and promenade. The Local Government Board has sanctioned a loan of £10,500 for the purpose. The plans of Messrs. Fairbank and Sons, of Westminster, S.W., and Driffield, have been adopted.

Additions have been made to the Somerset and Bath asylum, and special attention has been paid to the ventilation, which is carried out on the Boyle system, the latest improved form of the self-acting air-pump ventilator being adopted for the extraction of the vitiated air.

The Duke of Grafton has been making considerable additions to the interior of Stony Stratford Church. The choir stalls have been rearranged, and the old pulpit and sounding board removed. The additions to choir consist of carved oak stalls, clergy desks, &c. The old pulpit has been replaced by a new one in oak, carved to match. This work has been carried out by Messrs. Jones and Willis, of London, under the superintendence of Mr. Gray, the resident surveyor.

A large block of offices is now being erected at the St. Vincent's Ironworks, Bristol, from the designs and under the superintendence of Mr. R. Milverton Drake, architect, 24, College-green, Bristol. The frontage is over 100ft., with a depth of 60ft. Doulting stone will be used for the two main façades.

Harry Dainton, a journeyman mason, aged 34 years, who drowned his wife in the Avon on the 8th of September, was executed in Shepton Mallet Gaol on Tuesday.

St. Paul's Church, Scotforth, near Lancaster, which has for some months been in process of restoration and enlargement, was formally re-opened on Tuesday. The cost of the work has been about £850. The accommodation has been increased from 300 to 435 sittings.

The Lichfield board of guardians are about to add an infirmary and dining-hall to their workhouse, from plans by Mr. W. H. Woodroffe, of London.

A small section of the Walls of Chester opposite the Infirmary, a portion of the part reconstructed a quarter of a century since, was blown down during the gale of Friday night.

During the demolition of the roof of St. Cuthbert's Church, Edinburgh, on Friday, in the course of the operations for rebuilding that edifice, a principal gave way, carrying the scaffolding with it, and inflicting severe injuries on two workmen, named Proctor and Rathlay, in the employ of Mr. White, the contractor.

Intercommunication.

QUESTIONS.

[10681.]—**Qualities of Timber.**—Appreciating Mr. Stevenson's knowledge of timber in general and the interest he takes therein, may I trouble him so far as to ask what are the best ports and brands of fir for building purposes at the present time? I am under the impression that the ports of Dantzic, Memel, and Riga are practically used up, or that very little is shipped therefrom, and that the choice lies between Archangel and Gefle. Is timber for this purpose and for joinery obtainable entirely free from knots and really seasoned? When cut up for rafters, &c., no brands or marks can be traced, and one is then thrown on one's judgment of timber without any clue as to whence it was shipped, &c. Also, noticing his reply on Kauri pine in Building News on Feb. 27th last, are any other N.Z. woods obtainable, and if so, at what price, and in large or small quantities? I refer more particularly to Totara, &c., and woods used more for joinery and cabinet-making. Kauri shrieks whenever a plane is put on it,—J. H. S.

[10682.]—**Railway Curves.**—I should be obliged if some of my fellow-readers would kindly give me some information as to the setting out of railway curves? I wish to set out a curve of five chains radius, and I understand that engineers have a method other than by a centre.—J. C.

[10683.]—**Cement Testing Machine.**—Which is the best make of machine used for testing Portland cement?—Camac.

REPLIES.

[10663.]—**Timber.**—In reply to "J. S." I may say I thought in stating (Dec. 3), "that the red pine (Pinus rubra), as in Hurst's Handbook should read (Pinus resinosa)," I had cleared up the confusion noted by "Woodenhead" (Nov. 4). The confusion exists in Hurst's Handbook, and in "J. S." in defending it—i.e., in following a solitary French botanist, Andre Francois Michaux, who collected the materials for his works when on a visit to America a hundred years ago, and who died in 1803. His "North American Sylva, &c," was translated from the French and published in Paris in 1819. This writer tried to introduce the epithet "rubra"; but it never took root, not even with his own countrymen. Our knowledge of this French name was not general until the above translation appeared in 1819, a date ten years after the appearance of W. Aiton's "Hortus Kewensis," which fixed the epithet "resinosa," which has been adopted by all writers in our language ever since. It is a living name, whereas that of Michaux is a dead name. For proof of this, instance J. C. Loudon in his "Arboretum et Fruiticetum Britannicum," published in 1833, who gives ten references to writers using "Pinus resinosa," one ditto using "P. canadensis," and one (Michaux) using "P. rubra," and Charles S. Sargent Arnold, professor of aboriculture in Harvard College, in his voluminous state "Report on the Forests of North America, Washington, Government Printing Office, 1884," who gives forty references to writers using "P. resinosa" (which he adopts) to three, Michaux included (all French) using "P. rubra." "J. S." (Nov. 27) says: "Hurst follows Michaux's 'North American Sylva,' a work unequalled for accuracy by any produced by recent writers." All I can say is, if he follows him, to the exclusion of all other writers in his mother tongue for his botanical classifications or identifications, he is following an obsolete and confusing guide. "J. S." (Dec. 11) alludes to the Philadelphia edition (1850-51) of Michaux's work, which seems to place him among modern writers and to hold him up in a false light, especially so, as he follows with the remark: "Michaux, who is certainly the best authority on North American trees, and an eminent botanist into the bargain." I have nothing to say against Michaux as a botanist, but he is a bold man who places him before the authorities of this century. Now, as to Mr. Hurst's statement that the American red pine (P. resinosa) is a mere variety of the European, Scotch, or Baltic fir (P. sylvestris). I again say it is no such thing: it is a distinct species, it is not even a doubtful variety. Hurst's assertion is wholly unsupported by evidence. "J. S." says it all depends upon the term "species." What he implies is to widen the meaning of "species" to that of "genus"—i.e., suppress the classification of "species," and simply call one fir tree a "variety" of another. This arrangement is too absurd to follow: it is nothing short of upsetting the science or classification of botany. A species is a distinct type, one from which varieties may be produced by seed, the progeny of which invariably go back to the parent form. The red pine of America can never be a variety of the Scotch fir—until its seeds produce plants resembling the Scotch fir, a thing that is impossible in nature. The red pine has, I grant, much in common with the Scotch fir—firstly, from the fact that it is a conifer, and secondly, from its being in the same section—viz, leaves generally two in a sheath; but it is widely separate in the divisions of this section, inasmuch as the P. sylvestris has cones the scales of which are without prickles, the opposite being the case with P. resinosa; this difference is fixed, hence they are distinct species. As to the grain of the Pinus sylvestris being finer than that of the red pine, "J. S." quotes Michaux, alluding to the red pine, "when wrought as exhibiting a fine compact grain." With all deference to his authority, this is not my experience, who have been practically acquainted with the two woods for over thirty years; nor is it the experience of the above great American authority, Charles S. Sargent, who says of the red pine, "wood light, not strong; hard, rather coarse-grained." There has been a great mistake committed in Hurst's Handbook in holding up the red pine as a superior wood to the Baltic fir—"Grain finer, shrinks and warps less in seasoning, contains less sap, and very free from knots." I question whether "J. S.," or any other defender of the Handbook, can support this statement by any reference or authority. I look upon it as a wild assertion emanating from the writer's ignorance of the subject he had in hand. I gave, I think, sufficient proof of this (Dec. 4th) in comparing the breaking weights, the tensile strengths, and the crushing weights on cubes; but if more is wanted, compare the values on this market of red pine with the red or yellow deal of the Baltic. The assorted qualities of the latter stand at £16, £12 15s., and £9 10s., average £12 15s.; whereas the best shipments of red pine, unassorted, stand at £10 5s. per 165c.ft. I stand by my statement (Dec. 4) that the red pine is a soft, mild, undurable wood, of no special value in the trade, and I am not to be moved from my position that Michaux may have said to the contrary a hundred years ago. It is, no doubt, employed for the decks of vessels, and so is Quebec yellow pine (P. strobus), the softest and mildest pine in the world, each of which are immeasurably inferior to the Baltic fir deck planking shipped, equally as long as the red pine (40ft.) and equally as clean, from Dantzic. Mr. Laslett was, as "J. S." believes, a timber inspector in one of H.M. dockyards, and knew something about timber. He was "timber inspector to the Admiralty." He speaks favourably of the red pine, but he does not, as I have before noted, do this to the disparagement of Baltic red or yellow fir or deal (P. sylvestris). His opinion, as proved by his experimental tables, is that it is vastly inferior. I do not think "J. S." is conferring any favour upon "Sappy" in referring him, for the classification of woods, to such an old authority as Michaux. It is an operation akin to putting back the clock, for three out of the five instances "J. S." gives (Dec. 11) are botanically or commercially wrong. The following is the correct forms of the five species there enumerated:—

Commercial Name of Wood.	Popu'ar Names of living Trees.	Botanical Names.
Red pine.....	The resinous pine, red pine, or "Norway pine," of Canada.....	Pinus resinosa.
Red or yellow fir or deal..	The wood pine, Scotch pine, or Scotch fir	Pinus sylvestris.
Pitch pine. or Georgia pitch-pine.	The Southern pine, yellow pine, pitch pine, long leaved pine, or broom pine	Pinus australis.
Not imported into England ...	The rigid pine, pitch pine, Virginian pine, sap pine, or black pine	Pinus rigida.
White pine, yellow pine, or Quebec pine	White pine or Weymouth pine	Pinus strobus.

N.B.—The Pinus rigida, being called the "pitch pine," means that it bears this name in the district where it is grown, a district where the Pinus australis is not a feature. —William Stevenson, Queen's Dock, Hull, Dec. 14.

[10672.]—**Salisbury Cathedral.**—The groins and ribs of vaulting are of stone, but the filling-in is of chalk and stone, over which is laid a coat of mortar and rubble, apparently ground together and poured on hot to consolidate the whole into one mass. Squinches are thrown across angles of tower to carry the spire, and are strengthened with iron cramps. The walls of spire diminish gradually within, till, meeting with upright of the inside at the height of 20ft., they are reduced to 6in., which is the thickness of the stone to the summit. The ornamental shafts were not generally introduced till the building had taken its bearings, their places being left for them, and being afterwards fixed in a socket with lead and fastened to pillars by brass bands.—E. C. Finch.

[10677.]—**Testing Mortar.**—Take ½lb. of the mortar, crush it fine and mix well. Take of this 100 grains, and treat it with hydrochloric acid. When the effervescence ceases, wash out the sediment and filter it. Then wash the residue on the filter paper with distilled water. If the filter paper be dried, and the residue weighed, this will be the amount of sand in 100 grains of the mortar.—J. W. Bradley.

[10678.]—**Surveying.**—"A. W.'s" question as to whether, "when measuring a field with a very big fall" you "take the actual surface, or the horizontal, as in a map," is so very naïve that it would be doing him a good service to advise him to study some good book on the subject—say "Practical Surveying," by G. W. Usill (Crosby Lockwood and Son), price 7s. 6d.—C. C. S.

A receiving order has been made in the case of C. W. Ward and Co., of the Minories, City, builders and contractors.

Messrs. Archibald Smith and Stevens are supplying to the University College at Nottingham, for the use of the students, a set of hydraulic machinery, comprising one of their "Reliance" lifts, a set of high-pressure pumps, and an accumulator. The latter will also supply water for an hydraulic testing machine. The same firm have had the passenger-lifts at the Grand Hotel, Eastbourne, placed in their hands for overhaul, and, in one case, partial reconstruction. A new pumping-engine and hydraulic accumulator form part of the new scheme. A similar set of hydraulic-power machinery, together with two "Reliance" passenger-lifts, are also in hand for the York-street Property Company, Manchester, the lifts being of the same construction as that just erected by the same makers at Lloyd's House, Manchester. "Reliance" passenger-lifts are also in progress for five separate buildings on the sea-front at Brighton, for Warneford Hospital, Leamington; and in London for: Talbot House, Arundel-street; Geo. Newnes and Co., Limited; New Travellers' Club; St. George's Club; St. Ermin's Mansions; Ashley-gardens (sixth machine ordered); Continental Gas Association; Royal South London Ophthalmic Hospital; Hereford-mansions; Compton House; and six for the Imperial Institute, with other lifts, pumping-engines, and accumulators. A large hydraulic balance-lift is in course of erection under Stevens and Major's patent, at the offices of the North British and Mercantile Assurance Association.

Legal.

SOLE ARBITRATORS.

A very important and practical point as to the appointment of a sole arbitrator under the Arbitration Act, 1889, has just been decided by the Court of Appeal in a way distinctly favourable to arbitration generally as the best method of settling disputes. The case in question is that of "Eyre v. Corporation of Leicester" (*Times*, 8th Dec.), which has been through several courts. The plaintiff was a contractor, and he had been employed by the defendant corporation to construct a main sewer. The contract contained a clause providing for the reference of disputes to the arbitration of an arbitrator to be appointed. A dispute having arisen after the completion of the work, the plaintiff called upon the defendants to appoint an arbitrator under the contract. They refused, on the ground that the matter was not one for arbitration. The plaintiff then sent the defendants a notice calling upon them to concur with him in the appointment of a sole arbitrator to act in accordance with the clause in the contract, stating that in default he should apply to the Court to appoint an arbitrator under the Arbitration Act, 1889. They did refuse. Plaintiff applied to a Master, and then to a Judge at Chambers, but failed to get an order; but on applying to a Divisional Court, they sent the case back to the Master to say whether there should be an arbitrator or not. Now the defendants brought the case before the Court of Appeal, where they failed even more completely, for that Court held that under the Act the Court must appoint an arbitrator, and, therefore, that all the Master had to do was to say who should be that arbitrator, and thus the case was sent back to him for that purpose only. The statute, by section 5, gives the Court power to appoint an arbitrator after notice by either party to the other. "Where a submission provides that the reference shall be to a single arbitrator, and all the parties do not, after differences have arisen, concur in the appointment of an arbitrator." Both the Divisional Courts and the Court of Appeal agreed in holding that the clause in the contract amounted to an agreement to refer all disputes to a single arbitrator. Therefore the plaintiff had a right to give the notice under the Act. Then came the question as to the power and duty of the Court. The Act said the Court "may" appoint an arbitrator, and the Divisional Court regarded this as giving a discretion. But the Master of the Rolls held that it here meant "must," and he stated emphatically that when the parties had agreed to refer disputes to arbitration, and such disputes had arisen, and one party refused to concur in appointing a single arbitrator, "it would be monstrous if the Court could, by refusing to appoint, force the parties to go to law." The Master at Chambers, therefore, as representing the Court, has, under section 5 of the Arbitration Act, 1889, no discretion in this matter, and his duty merely consists in deciding who shall be the single arbitrator to be chosen. Fred. Wetherfield, Solicitor.

1, Gresham Buildings, Guildhall, E.C.

Note.—All questions for reply in this column must be headed "Building News," and must reach my offices, as above, by *Tuesday* morning to insure answer same week.

J. T. L.—New Building.—Projection.—1. The alteration proposed would not amount to a "new building"; but it might have such a projection from the building line as would require the consent of the Local Board. 2. Subject to covenants in lease or in a conveyance, the owner could build out the window as proposed upon his own ground.

Town Council.—Building.—No; such an account having been settled and closed, the claim could not be reopened again, except upon the ground of fraud, or some clear mistake of facts.

Rollo.—Hoarding.—Basement.—As to an erection on his own land, unless it substantially interferes with B.'s light and air, there is no remedy. There is no "right of sight" or prospect in law, and merely blocking a view is no ground of action. As to the other question, there is no legal way of compelling A. to fall in with B.'s plans for a basement.

A. C. T.—Skylight.—It is hardly possible for such a skylight as is here described to acquire an easement over the adjoining land. But if it could do so from its sloping position, there is no way of preventing it but by running up a wall or a hoarding at any time before the expiration of 20 years from the opening of the light, or by getting the adjoinlng owner to sign an agreement for its use at a nominal rent.

LEGAL INTELLIGENCE.

In re John Reed, of Plymouth.—John Reed, until recently a builder, carrying on business at Plymouth, and now manager for Reed, Blight, and Ccompany, contractors, Plymouth, came up for his discharge at the Stonehouse Bankruptcy Court on the 9th inst. His Honour, Judge Edge, having ascertained that another three or four months must elapse before the contracts were completed, adjourned the application until June next year, the opposing solicitor having leave to examine any further witnesses he might like in the mean time, but leaving on him also the responsibility as to costs if it should be found that these and previous examinations were unnecessary.

Claim for Loss of Light.—Holt v. Sinclair.—At the Liverpool Assizes on Saturday, before Mr. Justice Collins and a special jury, Charles Holt, "Rolighed," Hoylake, brought an action against Alexander Sinclair to recover £500 damages for obstruction of the light to his house. The plaintiff had paid £2,625 for his house and adjuncts, and also spent several hundred pounds on decorations, &c. In February last the defendant commenced to build a cottage opposite, with the result that the hall of the plaintiff's house, which was formerly light and cheerful, was now dark and gloomy. The value of the house was now reduced by about £400. The skilled evidence called for the plaintiff showed that the house had been deprived of 30 per cent. of its light. The letting value had been decreased £20 per annum. In order to recover the light, certain structural alterations, at a cost of £237, would have to be made, while there would be extra expenses incurred by the plaintiff during alterations. The defendant, while denying there had been any damage, paid £20 into court. Before the evidence for the defence was reached the jury intimated that they had heard sufficient of the case. They returned a verdict for the defendant, and his lordship gave judgment with costs. Mr. Bigham, Q.C., for defendant, said his client would make the plaintiff a present of the £20 paid into court.

In re G. and J. Clipsham.—A meeting of the creditors of Henry Clipsham and John Clipsham, trading at Norwell, Notts, as Henry Clipsham, and as G. and J. Clipsham, builders, was held on Friday at the offices of Mr. H. R. Thorpe, Official Receiver, Nottingham. The statement of affairs showed that the gross liabilities amounted to £1,981 3s. 1d., of which £1,832 6s. 11d. is expected to rank for dividend. The assets are estimated at £463 16s. 1d., leaving a deficiency of £1,368 10s. 10d. The Official Receiver's observations were: "The debtors, who have been adjudicated bankrupts on their own petition, state that they commenced business in 1883, under the name of Henry Clipsham and G. and J. Clipsham. The debtors have several building contracts on hand, which are in an incomplete state. The debtors gave, as reasons for their insolvency, that they were 'under capitaled, and also the expenses of actions brought against them for recovery of accounts.' The debtors' books are in a most incomplete state. The debtor Henry Clipsham has no separate assets. John Clipsham estimates that his estate will yield a small surplus to the joint estate. The debtors have clearly carried on business long after they were insolvent." In reply to the Official Receiver, the debtor, John Clipsham, admitted that he made a false statement to the manager of a Newark Branch Bank in order to induce him to continue his account. The Official Receiver said that was a matter which would have to be fully gone into at the public examination. They must admire John Clipsham's candour, whatever they might think of his conduct. A trustee and committee of inspection were appointed.

Appointment of Arbitrator.—Eyre v. Corporation of Leicester.—In the Court of Appeal last week, before the Master of the Rolls and Lords Justices Lopes and Kay, this appeal was heard from the decision of a Divisional Court (the Lord Chief Justice and Mr. Justice Wright). The plaintiff was a contractor, and had been employed by the defendants to construct a main sewer. The contract was made in October, 1888, and contained a provision for the reference of disputes to arbitration, and spoke of the award to be made by the "arbitrator or umpire to be appointed" in accordance with the condition. A dispute having arisen after the completion of the work, the plaintiff called upon the defendants to appoint an arbitrator. They denied that the case was one for arbitration, and refused. He then sent them a notice to concur with him in the appointment of a sole arbitrator. The defendants refused to comply, and the plaintiff accordingly applied at Chambers for an order appointing an arbitrator. His application was refused by the Master and the Judge, but was granted by the Divisional Court. The defendants appealed. Mr. Arthur Toller, for them, contended that the notice to concur in appointing an arbitrator was wrongly given. Further, this was not a case in which the Court should exercise its discretion and appoint an arbitrator. The Court dismissed the appeal, but varied the order of the Divisional Court. The Master of the Rolls said that he agreed with the Divisional Court that there was here an agreement to submit any disputes to the arbitration of a single arbitrator. A dispute had arisen, for it was admitted that part of the plaintiff's claim was within the arbitration clause in the contract. The objection that the notice which the plaintiff had given was wrongly given, was too fine and too technical, and could not be countenanced. When the parties had agreed to submit disputes to arbitration, and such disputes had arisen, and one of the parties had refused to concur in appointing an arbitrator, it would be monstrous if the Court could, by refusing to appoint, force the parties to go to law. He disagreed, therefore, with the Divisional Court, who had sent the matter back to the Master to decide whether there should be an arbitrator or not. All that the Master could do would be to say who the arbitrator should be. The order would, therefore, be varied in that respect. Lords Justices Lopes and Kay concurred.

WATER SUPPLY AND SANITARY MATTERS.

Maldon Sewerage. — At a meeting of the Sanitary Institute on Wednesday week in the Parkes Museum, Mr. Baldwin Latham in the chair, a paper was read by Mr. R. F. Grantham, on the sewerage of Maldon, Essex, with some observations on the recent practice in sewer ventilation. Maldon has a population of 5,500 inhabitants, occupying about 1,250 houses, of which a thousand have been connected with the new sewers. The separate system has been adopted except as regards gullies at the backs of houses through which a good deal of rain water finds its way into the sewers. In the ventilation the line followed has been to have as many openings as practicable, and an increase in the number of upcast shafts, with a view to their preventing stagnation of air in the sewers. The general adoption of this system also to house drains was advocated, and the author suggested that future investigations should be conducted with the object of amalgamating the two systems of pipe shafts, doing away with siphon traps in house drains outside the houses. In the discussion which followed Dr. Parkes, Mr. de Courcy Meade, Mr. Walker, of Croydon, and Mr. Rogers Field were the principal speakers.

Snodland.—The Mid-Kent Water Company is about to extend its works, building a new low-level service reservoir, and laying new mains in Halling, Snodland, and Birling. The engineer, Mr. Arthur F. Bowker, estimates the cost of the new works at £7,500. Contracts are now being made for a considerable part, and the remainder will be proceeded with when further capital is obtained.

CHIPS.

The new board schools, Grimsby, are being warmed and ventilated throughout by means of Shorland's patent Manchester grates and vertical inlet brackets, the same being supplied by Mr. E. H. Shorland, of Manchester.

The works committee of the Hull corporation have adopted a report in which they express dissatisfaction with the work of the borough engineer's department, though not casting the slightest reflection upon the integrity of the borough engineer. They propose to take measures for the reorganisation of the department, and with that object they conclude that it should consist of the following officers, at the salaries stated:—Borough engineer, £750 per annum; assistant ditto, £350; chief engineering assistant, £200; second ditto, £125; third ditto, £120; fourth ditto, £60; chief architectural ditto, £150; second ditto, £100; chief clerk, £110; clerk, £40; clerk, £40; clerk, £20; total, £2,065.

Amongst the special gifts to the new church of St. Andrew, Yeadon, is a stained-glass window from the studio of Messrs. Powell Brothers, of Park-square, Leeds. The window illustrates the Conversion of Maximilla, the wife of the proconsul Ægeus, to Christianity.

The annual output of Portland cement in Europe exceeds 20,000,000 tons, of which 8,300,000 are produced in England, about the same quantity in Germany, 1,800,000 in France, 900,000 in Russia, and 800,000 in Belgium. The production of the United States is estimated at about 3,000,000 tons per annum.

The four side chancel windows of St. John's Church, Bradford, have now been filled with stained glass by Mrs. Light, who some time since gave the large east window to the same church. The new window, together with the east window, illustrate the history of Our Lord from His Resurrection to His Ascension. The whole of this work has been done by Messrs. Powell Brothers, of Park-square, Leeds.

Our Office Table.

Mr. T. Henry Bartlett is very dissatisfied with the operations of the Building Act Committee of the London County Council, an untrained, overworked, and constantly-changing body. He suggests that if the Metropolitan Building Act is to be altered as Mr. Ritchie proposes, this Building Act Committee should be abolished altogether; and as a substitute he suggests that a Board consisting of eight experts, all in practice, should be appointed to be nominated, two by the Local Government Board or the Board of Trade; two by the Royal Institute of British Architects [why not one of these by the Society of Architects?], two by the Institute of Surveyors, and two by the Institute of Builders. Three of such Board should sit three times a week to hear and determine on applications, for which a uniform charge of, say, 15s. might be made. In the event of either party being dissatisfied with the decision arrived at, the questions in dispute should be referred to a Board of Experts, consisting of not less than five (members of the chosen eight), the decision of a majority of whom shall be final and conclusive. He also recommends that district surveyors should be forbidden to practise privately, and should be paid by fixed salary. If these changes were made, he thinks confidence would be created, applications would be disposed of quickly, and there would be uniformity of practice within the Metropolitan area.

Within less than three months of the death of his wife, Alderman George Manwaring, J.P., of Brighton, succumbed last week to influenza, after only a few days' illness. As late as the 3rd inst. he had attended a meeting of the Town Council, looking full of vigour and robust health, but on leaving the council chamber he took a chill, which speedily developed into influenza. Inflammation of the lungs supervened, and he died on Wednesday at his residence, 6, Albany Villas, Hove. Alderman Manwaring, who had some years ago retired from his business as a builder, entered the Town Council in 1872, sitting for the West Ward, which he well represented until his death. Possessing great force of character and shrewdness, and capacity for public affairs, he soon came to the front rank in the council, and there were few of the more important works in which the council have engaged for many years past in which the deceased did not take a prominent share, either as a supporter or as an opponent. In 1889-90 he served the borough as mayor. Outside the work of the council, he took a good deal of interest in building societies, and in the management of the Brighton Grammar School and the School of Science and Art. At the time of his death he was engaged in the preparation of a scheme for adapting the latter institution for the purposes of technical education, so as to widen its capacities for usefulness.

Convened by the Hull District Council for the National Registration of Plumbers, a meeting for the distribution of prizes and certificates to the successful students was held on Wednesday week at the Mechanics' Institute in that town. Mr. W. R. E. Coles, clerk of the Plumbers' Company, attended as the representative of the court, and explained in the course of the proceedings the action the company were taking with the object of promoting a Bill in Parliament to make registration compulsory. The following motion was subsequently carried:—"That this meeting of master and operative plumbers, sanitary authorities, architects, and others of Hull and district desire to record its opinion that the time has now arrived when it is essential to the protection and preservation of the public health that the system of registration of plumbers which has been established by the Worshipful Company of Plumbers with the co-operation of various local representatives of the plumbers' craft, and the sanitary authorities, should receive the statutory powers which are necessary to secure the efficiency of the system."

At the "Luckie Horseshoe" Art Studios, at Exeter, last Saturday evening, a very happy time was spent by employers and employed. It was the 25th anniversary of Mr. Harry Hems going first to Exeter, and his staff—to the number of about 80—in accordance with a long-continued annual custom, had supper with him, followed by a very pleasant season, whereat the

fumes from punch and tobacco-pipe bowls added considerably to the enjoyability of the occasion. The Misses Hems proved expert musicians on piano and violin, and the singing of Miss Flo Jennings quite "brought down the house." Mr. Frank Dyer, as the senior craftsman, and twenty-two years with the firm, proposed the healths of Mr. Harry Hems and his sons, and of Mrs. Hems and family, which was accorded musical honours, and Messrs. Hems suitably responded. General harmony followed, and when the hour of midnight sounded from the neighbouring cathedral tower, the art workers joined hands and sang "Auld Lang Syne." This done, the party presently broke up, and another milestone in the record of Mr. Hems's happy life was left in the rear.

The *Railway Review* (U.S.A.) describes a novel method of laying foundations in swampy soil, recently employed by an American engineer. The building to be supported was a low wooden one, which it was proposed to use for the storage of machinery. Casks were set in holes in the ground along the line of posts, and were filled to the depth of about 1ft. with iron turnings. The posts were placed in the casks, which were then filled with iron turnings compactly rammed in place. A solution of salt and water was slowly poured over the turnings, under the action of which they solidified into a hard mass. The heat of the oxidation of the iron was so great that the posts were charred. This also served to act as a preservative, and to that extent the iron turnings are probably superior to concrete under similar conditions.

The Scottish Clerks' Association opened a London branch last year at the Scottish Corporation Buildings, Crane-court, Fleet-street, E.C. Its objects are: To supply firms with competent and trustworthy clerks, secure situations for members, grant weekly allowances to members in case of sickness or unemployment, provide medical attendance and medicine, grant allowances to relatives in cases of death, and to provide an agreeable and welcome entrance to members coming from the provinces to London, or from one city to another. On Friday last the opening concert of this association took place at its head-quarters, when Mr. Alex. Ritchie, L.C.C., hon. member (Messrs. Steven Bros.), presided. Misses L. Duncan, L. K. Jackson, J. Amis, L. Lauterbach, and Dr. Hope Grant, Dr. L. Grant, Messrs. Chapny, Harden, Lilly, and Duncan contributed to a very enjoyable entertainment. The association has paid £1,913 in allowances, and out of a membership of 1,370, few are unemployed at one time.

The Sanitary Committee of the Leeds County Council have resolved to take steps to secure a site, about twenty acres in extent, upon which to erect an hospital for infectious diseases.

New wine stores, in Paradise-place, Cardiff, are being erected from plans prepared by Mr. Charles C. Jones, architect, Cardiff.

Cotes Heath Church, Staffs, was reopened on the 10th inst. after enlargement and repair. The roof has been made sound, the windows throughout have been reglazed with tinted Cathedral glass, the floors relaid with tiles, the seating improved, and a new heating apparatus of hot water on the low-pressure system provided. The church has also been extended eastwards by the erection of a new sanctuary, 18ft. by 15ft., in warm red sandstone. The works have cost about £500. The architect was Mr. C. Lynam, of Stoke-on-Trent, and the contractors were Messrs. J. Ward and Sons, of Uttoxeter.

A churchyard cross has lately been erected to the memory of the late Vicar of Upton Bishop, Ross, Prebendary Havergal, D.D., a brother of the well-known writer, Miss Frances Ridley Havergal. The lower portion consists of three octagonal steps, the bottom one being 6ft. 6in. across. On the top of the third step is fixed the base of the shaft, a square block about 2ft. by 2ft., having chamfers, bringing the top up to an octagon. On the east side of the base an inscription is cut in. On the west a small niche is cut after the old examples. The tapering octagonal shaft is surmounted with a foliated cross in the Early English style, the latter being a reproduction of the former churchyard cross, fragments of which were found many years ago in the walls of the church by Dr. Havergal. The height from the base to the top of the cross is about 12ft. The whole is worked out of blue Forest of Dean stones, and has been executed by Mr. Robert Clarke, of Hereford.

MEETINGS FOR THE ENSUING WEEK.

Tuesday.—Glasgow Architectural Association. "Electric Lighting," by Mr. Cook. 8 p.m.
Liverpool Architectural Society.—"Egypt as a Home of Early Art," Part II. by Rev. F. F. Grensted.

CHIPS.

The Vicar of Worksop is making an appeal for funds to restore the 14th-century ancient gate-house of Worksop Abbey Church. The cost is estimated at £2,700.

The ratepayers of Birmingham, by a majority of 7 to 1, have voted in favour of the resolution proposed at the recent town's meeting, authorising the town council to promote a Bill next session for carrying out a scheme of water supply from Mid-Wales.

The autumn exhibition of pictures in the Walker Art Gallery, at Liverpool, closed on Saturday, when the total sales amounted to £7,327 9s. 6d., and further transactions are still pending. From a pecuniary point of view the exhibition of 1891 will be remembered as the most successful one that the Liverpool Corporation have yet held, the next successful being that held in 1884, when all the principal artistic societies in the country were represented.

During the heavy storm which prevailed in Crewe and district on Thursday night, the chimney-stack of a house in Edleston-road, Crewe, occupied by the borough surveyor, Mr. G. Eaton-Shore, was blown down and went through the roof, falling on to the children's bed, which fortunately was unoccupied.

Mr. S. J. Smith, C.E., Local Government Board inspector, accompanied by Mr. Walker, engineer, held an inquiry on Friday at the office of the Chepstow Urban Sanitary Authority, that body having applied for power to borrow £5,100 for the purpose of draining the town.

The Chelsea Board of Guardians have adjourned, till their meeting next Wednesday, consideration of a scheme for enlarging the workhouse infirmary by a new block, to be erected at the corner of Sydney and Cale-streets, providing accommodation for 35 nurses and three officials. The present nurses' apartments are to be added to the men's wards.

At the Camden School of Art, Bartholomew-road, Camden-road, on Saturday night, Sir R. Temple, M.P., distributed 228 Government awards, won by students of that school, of which Mr. Francis Black is the head master. These awards included two Queen's prizes, gained by Mr. W. S. Thomas, 34 third, and 11 second-grade prizes.

The congregation of Hanham Tabernacle have supplied their chapel with a new organ, built by Mr. W. G. Vowles, of St. James's-square, Bristol, at a cost of £200.

The town council of Gravesend discussed at their last meeting the points whether, in the competition for new municipal offices and markets to be built at a cost of £5,000, a premium of fifty guineas should be offered for the best design, and whether a professional assessor should be appointed. After a long discussion the voting was found equal for and against, whereupon consideration of the question was adjourned for a month.

The restoration of Rochester Cathedral has been proceeding for many years in a piecemeal manner, and the Dean and Chapter are now about to appeal to the public for funds to complete it, their project including the replacement of the present incongruous tower, built in 1826 from designs by Cottingham, by a spire.

Mr. P. H. Calderon's "Renunciation of St. Elizabeth," the sensation of the last Academy show, has been lent by the Chantrey Trustees to the Leeds Corporation, and the picture will form the leading feature of the Spring Fine Art Exhibition in that town.

The Manchester Academy of Fine Arts, which was first instituted in 1859, has been reconstituted, and, with a new code of rules, has now been registered as a specially authorised society under the Friendly Societies Act of 1875.

An inquiry was held at the Local Board Office, Sutton, Surrey, on Thursday, the 10th inst., by a Local Government Board inspector, into the application of the Local Board for power to borrow the sum of £4,000 for the purpose of sewerage. There was no opposition.

The parish church of Horsell, which has recently undergone restoration, has been still further improved by the addition of an organ, which has been erected by Messrs. J. W. Walker and Sons, of London, at a total cost, including the case, of £720.

The bronze equestrian statue of the late Field-Marshal Lord Strathnairn, will be erected at Knightsbridge, at the junction of the Knightsbridge and Brompton roads. Mr. E. Onslow Ford, A.R.A., has been intrusted with the commission.

Trade News.

WAGES MOVEMENTS.

Aberdeen.—The strike of plumbers, which has been going on for the past six weeks, has now been terminated by the Aberdeen Masters' Association having agreed to grant the demand of ½d. extra per hour on the present rate of wages, the increase to take effect immediately.—The Aberdeen carpenters and joiners, at their annual meeting on Saturday night, decided to ask an increase of wages in March next.

Bath.—A meeting of the late employés of Messrs. Harris, cabinet-makers, was held on Friday evening in the Foresters' Hall, Bath-street. The men came out on strike a week or two ago, and they met to consider the situation and discuss the principle of productive co-operation. The men, it is said, intend to adopt those principles and start manufacturing furniture on co-operative lines.

Cardiff.—Notice has been given by the men employed in the Cardiff building trade to terminate their contracts in May next. They demand an advance of wages, and in some cases a reduction of working hours also. About 18 months since they received a rise of wages generally. The master builders will, it is believed, resist the demand, and a strike on a large scale will follow.

Edinburgh and Leith.—The following are the working rules and regulations for the house carpenters and joiners of Edinburgh and Leith approved of by the Board of Conciliation, consisting of seven employers and seven operatives:—1. For competent workmen the standard rate of wages to be 7½d. per hour, and to be paid weekly. 2. The regular working hours to be 51 per week—i.e., 9 hours per day for five days, and 6 hours on Saturdays, except as after provided for. Work to begin at 6, 6.30, or 7 a.m., and to cease at 5 p.m., and 1 p.m. on Saturdays. During winter months the hours to be as follows, viz.:—From November 4 to November 18, 8½ hours, Saturdays 5 hours; from November 18 to December 2, 8 hours, Saturdays 5 hours; from December 2 to January 6, 7½ hours, Saturdays 5 hours; from January 6 to January 20, 8 hours, Saturdays 5 hours; from January 20 to Feburary 10, 8½ hours, Saturdays 5 hours. All time, in addition to the foregoing, to be paid for at the rate of time and quarter up to 10 o'clock p.m., and after that hour double rate of pay to be allowed; but these extra rates are only to take effect after a week's work has been wrought, except in the case of men taken on during the week. Wages to be paid at the regular time of ceasing work, or sufficient time allowed to travel to workshop for these. 3. Within the municipal boundaries of Edinburgh and Leith, men to reach their work and travel from the same in their own time. If not over four miles beyond the boundaries, 6d. per day to be allowed, or travelling time to and from these; but if over four miles, to be allowed 4s. per week, and railway fares when sent to and from the job. When men are taken on for or at a country job, this rule does not apply. 4. After 30 hours' work with an employer, men to be allowed one hour to put their tools in order; and after 51 hours, two hours for that purpose. 5. Employers to provide means for workmen warming their meals at outside jobs and in workshops, and to find someone to attend to the same. Also to make provision for the safety of tools. 6. No piece or task-work to be wrought by workmen, and no sub-letting unless sub-contractor supplies plant and material. No materials to be carried for employer, except in working hours. The above rules and regulations to come into force on the 1st day of January, 1892. In name of Conciliation Board.—Walter Kirkwood, president; Andrew Kiddie, joint-secretary; George Laidlaw, vice-president; George Wilson, joint-secretary.

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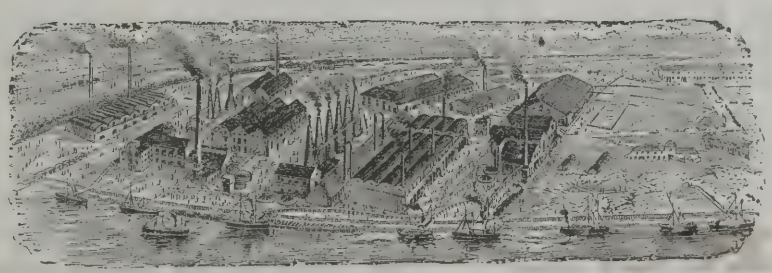
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TENDERS.

*** Correspondents would in all cases oblige by giving the addresses of the parties tendering—at any rate, of the accepted tender: it adds to the value of the information.

BRANDON, DURHAM.—For house, shop, and cottage at Meadowfield, for Mrs. Johnson. Mr. H. T. Gradon, Durham, architect:—
White, J., Shieldfield, Newcastle-on Tyne* £342 0 0
* Accepted. Four tenders received.

BEDMINSTER, BRISTOL.—For the construction of a culvert and other works to prevent flooding from the Malago river at Bedminster, for the Floods Committee of the Bristol city council:—
Durnford and Son (accepted) ... £18,000 0 0
[Lowest of five tenders received.]

BURNLEY.—For erection of warehouse and alterations to settling tanks, for the Burnley Paper Works Co., Ltd. Mr. J. W. Bradley, Leicester, civil engineer, who also supplied the quantities:—
Byrom, J., Woolfold, Bury.
(Accepted for the whole of the works required.)

CHELTENHAM.—For the erection of an abattoir for the town council:—
Malvern, C., and Son (accepted) ... £1,645 0 0

CHESHAM.—For new shop front and alterations at premises in High-street, Chesham, for Mr. J. Mayo. Mr. G. H. Green, Chesham, architect and surveyor:—
Mead, A., Chesham (accepted) ... £129 0 0

CHESHAM.—For two houses and factory, Bellingdon-road and Higham-road, Chesham, for Messrs. G. Hawes and Son, brush manufacturers, Chesham. Mr. G. H. Green, Chesham, architect:—
Darvell, F., Chesham (accepted) ... £1,538 0 0

CHESHAM.—For house, Stanley-avenue estate, Chesham, for Mr. H. G Webb. Mr. G. H. Green, Chesham, architect:—
Darvell, F., Chesham (accepted) ... £487 0 0

EVESHAM.—For the reseating and partial restoration of St. Lawrence Church:—
Espley and Co. (accepted as revised) £1,037 7 1

FRINTON-ON-SEA, ESSEX.—For the erection of a private house, for Mrs. G. Storey, of Stoke Newington, London, N. Mr. W. G. Gillingham, Frinton-on-Sea, architect:—

Gladwell, H.	£794 0 0
Dupont, F.	575 0 0
Day, W.	470 0 0
Potts, M.	469 10 0
Allen, J. C., Clacton-on-Sea* ...	465 0 0

* Accepted.

HYTHE, KENT.—For the laying of a drain in Park-road, for the town council:—

Perrin	£1,775 0 0
Street	1,687 10 7
Richardson	1,500 0 0
Lanlidge	1,280 0 0
Toler	1,230 0 0
Rackham	1,189 0 0
Jeal (accepted)	1,098 0 0
Wheeler	1,077 0 0
Mesham	1,053 16 0

HAMPSTEAD.—For building the Hampstead Synagogue. Mr. Delissa Joseph, F.R.I.B.A., architect:—
Allen, J., and Sons, Palmerston Works, Kilburn (accepted) £9,162 10s. 0d.

KINGSWEAR, DEVON.—For the erection of a Swiss chalet at Kingswear. Messrs. E. Appleton and Son, architects:—
Pack, S., Torquay (accepted).

LEEDS.—For doubling the size of the water reservoir at Moortown, for the Leeds town council:—
Gould and Stevenson, Hunslet, Leeds (accepted) about £4,000.

LONDON.—For alterations and dilapidations at No. 6, The Crescent. Minories, E., for Mr. J. Weil. Messrs. Bushell and Crosier, 1, Finsbury-circus, E.C., architects and surveyors:—
Layton, and Son, Hackney (accepted).
(Lowest of three tenders received.)

LONDON.—For alterations at the Sugar Loaf, Great Queen-street. Mr. H. W. Budd, 76, Vincent-square, S.W., architect:—

Lamble	£1,275 0 0
Prestige and Co.	1,258 0 0
Masters	1,227 0 0
Charteris	1,197 0 0
Martin, Wells, and Co. (accepted)	1,070 0 0

LONDON.—For erecting new loading stage and constructing basement under same at Rolls Buildings, Fetter-lane, E.C., for the London Parcels Delivery Company, Limited. Mr. H. Poston, F.S.I., 39, Lombard-street, E.C., architect. Quantities supplied:—

Mowlem and Co.	£1,845 0 0
Morter, J.	1,838 0 0
Nightingale, B. E	1,770 0 0
French, W. E., and Co.	1,679 0 0
Rider, T., and Son	1,535 0 0
Woodward and Co.	1,515 0 0
Patrick, M., and Son	1,482 0 0
Colls and Sons	1,439 0 0
Shurmur, W. (accepted)	1,395 0 0

LONDON.—For building stables, St. Alban's-place N., for Mr. Aldridge. Mr. E. J. Harrison, 70 and 72, Chancery-lane, W.C., architect:—

Andrew, T.	£163 0 0
Ward and Lamble	127 0 0
Houghton, E., and Son	118 0 0

LONDON.—For alterations and improvements at the Eight Bells Tavern, Ironmonger-row, Old-street, E.C. Mr. F. G. Grierson, 9, Old Jewry Chambers, Cheapside, E.C., architect:—
Tunbridge, W. A., Peckham (accepted).
Pewterer's Work:—Davis and Sons (accepted).

"THE LONDON GRATE"

(Jennings' and Owen's Patent.)

IMPROVED

WARM FRESH-AIR VENTILATING GRATE.

Adopted in the Bank of England, Threadneedle-street, and the New Law Courts Branch; Wonford House Asylum, Exeter; New Cottage Hospital, Blackheath;
AND MANY OTHER PUBLIC AND PRIVATE BUILDINGS.

GEORGE JENNINGS,

SANITARY ENGINEER, STANGATE, LONDON.
AWARDED THE GOLD MEDAL, PARIS EXPOSITION, 1889.

TWELVE GOLD AND SILVER MEDALS AWARDED.

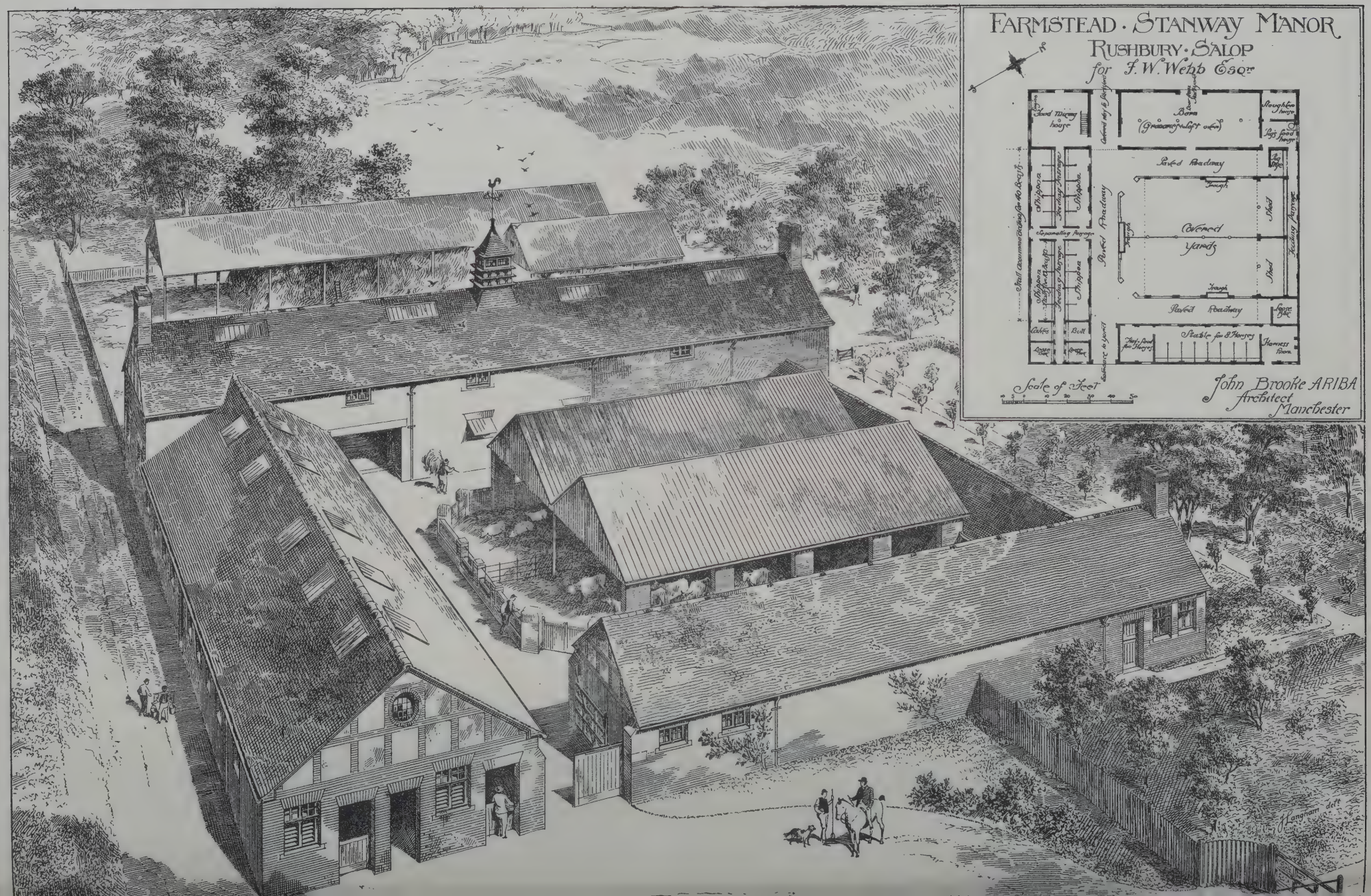
ZINC ROOFING.

F. BRABY & CO., LD.

VIEILLE MONTAGNE SOLE MANUFACTURING AGENTS.

NO SOLDER. NO EXTERNAL FASTENINGS.

LONDON: 352 TO 362, EUSTON ROAD
LIVERPOOL: 6 & 8, HATTON GARDEN.
GLASGOW: 47 & 49, ST. ENOCH SQUARE.


FARMSTEAD · STANWAY MANOR
RUSHBURY · SALOP
for F. W. Webb Esqre
Scale of Feet
John Brooke ARIBA
Architect
Manchester



The North View.

T. Butler Wilson, Archt.



The West Window St Michael's Church, Designed & Executed by Atkinson Bros Newcastle on Tyne

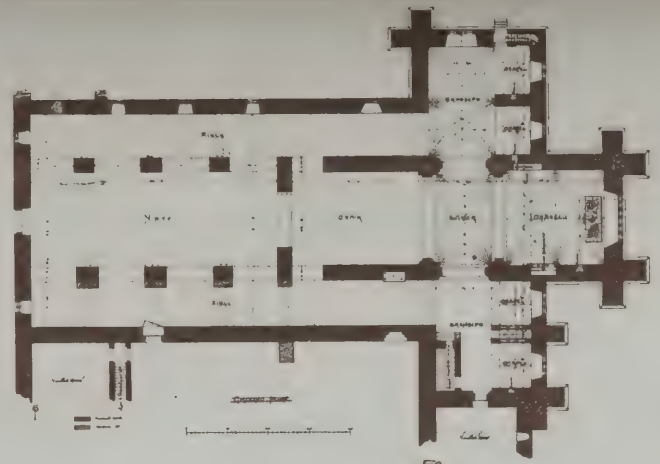
MESSRS DUNN·HANSOM & DUNN ARCHTS

J. Akerman, Photo-lith. London

HOLY CROSS ABBEY,

COUNTY TIPPERARY:













DRAWN BY SAMUEL P. CLOSE A.R.H.A.I.

Photo-Lithographed & Printed by James Akerman, 6, Queen Square, W.C.

for Samson Fox. Esq. C.E. J.P.



The South View.

T. Butler Wilson. Archt.

Photo-Lithographed & Printed by James Akerman, 6 Queen Square, W.C.

NEW · CHURCH · HEAP-BRIDGE · NR · BURY · MESSRS PRESTON & VAUGHAN · ARCHTS

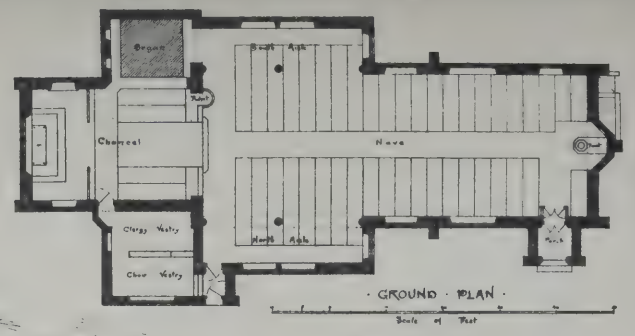


Photo Lithographed & Printed by James Akerman, 6, Queen Square, W.

BATTERSEA TOWN HALL, 2ND PREMIATED DESIGN.

BY MR H.A.CHEERS. ARCHITECT.





"PHOTO-TINT," by James Akerman, 6, Queen Square, London, W.C.

THE BUILDING NEWS
AND ENGINEERING JOURNAL.
VOL. LXI.—No. 1929.
FRIDAY, DECEMBER 25, 1891.

ARCHITECTS' SPECIFICATIONS.

IN these days of excessive competition there is a danger of specifying systems and appliances which have a good name, but are not well adapted to the purpose we intend to put them. There is even a risk that, in the desire to introduce novel materials and inventions, we neglect to avail ourselves of older and more judicious methods. The pushing architect likes to make himself *en courant* with the existing state of building progress and the market; but his knowledge is of necessity mainly derived from descriptive catalogues and prospectuses. A large number of heating appliances is brought to his notice, and the question with him is which of them he ought to select or to recommend to the notice of his client. His knowledge of heating arrangements may be limited. He does not understand well the principles of a good heater, or the particular points that ought to be observed in fitting up. He is in actual need of information upon the subject independently of the trade; but where can he go for it? The question of art enters. That which is least unsightly is a consideration; but, for all that, the very ugliest may be the most efficient. To specify that which is most advertised is not always a reliable course. Testimonials and Press notices may with more safety be regarded, because they give some notion of the advantages to be derived from certain systems, and point out the principle. In selecting any system for warming buildings—by hot water, for instance—the principle of circulation of water has to be remembered. As every engineer is aware, the water in pipes parts with its heat by radiation and conduction, and circulation takes place by the water in the descending pipe being colder, and therefore heavier, than the water in the boiler; consequently the colder the water is in the descending pipe relatively to that on the boiler, the more rapid will be the circulation. Upon this principle the system of arranging the pipes has to be determined—that is, to insure greater motive-power the descending pipe must be placed so that the water has to travel a longer distance before it descends, a principle shown clearly by Hood in his treatise on Warming Buildings. The kinds of apparatus for heating buildings by low-pressure are numerous; yet the architect ought to be able to make up his mind as to the best for his particular purpose, how many and what kind of boiler and radiator are necessary, the size and arrangement of the horizontal service pipes, if beneath ceiling or below floor-boards (the former being the most desirable, as saving cutting of joists), the cold supply cistern and its position. These are matters which are left to manufacturing engineers for specifications and estimates in many instances, no doubt with advantage when a good firm is selected, but with certain disadvantage when competing firms are invited to undertake the work in their own way, and to offer tenders. In this case the desirability of deciding on the system, the boilers, the kind of radiators and fittings is very obvious. How much money has been wasted on inefficient or imperfectly executed systems of heating; perhaps owing to the want of properly covering the flow-pipes of mains where they have to convey heat to a great distance, to prevent loss of heat by radiation; perhaps, owing to want of stop cocks and air-vents to the coils, and to the fact that these are not of a good type. In buildings of several floors warmed on this system, good results are obtained by connecting the radiator to the return-pipe. In this branch of our subject we may refer to the question so frequently put in our pages, as to the best plan for warming rooms by heated air. The very excellent results obtained by the warm-air generating Manchester grate, made by E. H. Shorland, by which warm-air flues are carried up the chimney-breast on each side of the smoke-flue, and have inlets for warm air below the ceiling, are not so generally adopted as the value of the system entitles it to be. The principle, also, of heating the air in the hall of a house has been neglected.

Professionalism has not been favourable to independent opinions on these and other matters; it rather contents itself with recommending appliances or new systems in specifying certain goods without personal examination of their absolute merits or defects. We certainly need in these directions more of the artist craftsman, more personal inquiry into and knowledge of what are the best and most appropriate warming, sanitary, and ventilating appliances; which floors are the most desirable; which bricks and terracotta goods are the most durable and artistic; which fireproof floors and partitions give the best results, and are the most economical; what joinery should be used; and what fittings and sanitary fixtures possess the qualities that are most necessary. The fact is, an architect is too much disposed to leave all these questions to specialists and manufacturers, and if he specifies the name of the article or the maker he imagines he has fulfilled his duty. This notion no doubt springs naturally from the threefold division of an architect's function, that he may be either a scientist or constructor, a man of business or an artist, and that construction and art are two distinct things, and are separable, though, as Mr. Reginald T. Blomfield and Mr. Jackson said the other day at the Association, it is absolutely impossible to separate construction from art. Both must go hand in hand. An architect must know, as the latter gentleman has said, how to construct artistically. Nowadays a great deal of the artistic merit of a design is centred in the manufactures and materials which are supplied, and which often lie outside the architect's business. To bring these fittings and details again under his control is the object he should aim at. A modern building is largely composed of ready-made fittings, and an architect cannot construct artistically unless he can influence the design of these things. He can only do so by making himself a master of the difficulties of manufacture, and the principles to be kept in view. But does he? No; these matters are left to the owner or to the taste of the manufacturer, so that all the art of the architect is confined to the general design or elevations. If we consider that the external architecture of a building is mainly composed of floors, walls, and ceilings, joinery, and fittings, the manufacturer must be credited with a very considerable share in the artistic merit of a modern mansion or club-house, hotel or church; such things as mosaic or parquet floors, oak or walnut dadoes, wall and ceiling fabrics and decorations, in addition to fittings—which term comprises almost everything from a door-handle to a firegrate. Artistic construction is not possible if we allow the engineer to decide the position of girders and columns, the form of heating and ventilating apparatus; the electric engineer the design of electroliers, the parquet manufacturer the pattern of a floor, the modeller or plasterer the decoration of a ceiling. Separation between business and art will naturally continue to widen under these conditions. Those who are conscientiously striving for artistic construction are men who design details and put themselves in contact with each building trade. Let us take two or three of these. Brick and terracotta work has made great advances in manufacture. The Doulton, the Ruabon, and one or two others show a decided movement towards an architectural treatment of the material, mainly the effect of a few leading architects, such as Mr. Waterhouse, Mr. Norman Shaw, Messrs. George and Peto, who have shown the art capabilities of manufacture. They design in the chosen material instead of merely specifying. In woodwork and decorative joinery, the system of allowing every contractor to interpret a general specification is repugnant to a proper conception of design. The architect who desires the work to be a credit to himself draws out each detail; he visits the workshop, and gives his own personal instructions; his specification is minute and descriptive, referring to details, and not a mere empty injunction—the "whole to be executed according to the architect's approval." High-class joinery, mouldings, parquetry, and fittings are executed by several well-known firms, to whose hands the architect may implicitly leave the most specific instruction. It is needless to refer to wood-block flooring, parquetry, ecclesiastical fittings and furniture produced by firms well known to our readers, to show that construction and art can be realised if the artist and workman are within touch. Even in metalwork the stock pattern has been raised in its character; and if we look at the catalogues of beautifully-printed chromolithos, we shall find that tiles have an artistic manufacture with some leading firms.

The only means left to the profession to impress their art upon manufacture is the specification. He can select a certain make or a particular pattern. Does he always exercise this prerogative? Is it not bartered away in some cases to reduce expenditure, to be set against extras, or to be left to the taste and whim of the owner? The condemnation of manufactured goods recoils upon the specifier, for he, by these practices, encourages cheapness and bad design. By choosing inferior articles he gives his sanction to the manufacture of ill-designed productions and inefficient workmanship. The weakness of the modern specification is that it merely certifies the name of particular goods; it is seldom even descriptive, rarely instructive to the manufacturer or contractor. Design and workmanship are left to him, the consequence of which is a practical surrender of the architect's intentions. But he has the control if he cares to use it. The specification is the chief instrument. To describe accurately the object, to specify those things which are not shown in the details, should be the aim. The fault is in making the specification a list of provisions, instead of a document of directions to the workman or manufacturer. But this is the ordinary custom. A decided improvement would be made if the ever-recurring "To provide" were to be substituted by the more instructive injunction, How to execute.

NONCONFORMIST CHURCH BUILDING.*

By James Cubitt.

Chapter III. (*continued*).

5.—WARMING.

PUBLIC buildings in this country are most commonly warmed either by hot air or by hot water. The latter may be either on the high-pressure or the low-pressure system. Warming by stoves is

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generally unequal. There is too much heat near the stove, and too little away from it. Stoves, also, unless they are sunk in the floor, fail to heat the lowest stratum of air, and, consequently, keep people's heads warm and their feet cool. Those forms of hot-air apparatus, also, which allow the heated air to enter the building at only one or two points, have many of the faults of stoves, in addition to some special ones of their own. They divide the building into a torrid and a frigid zone, neither of them well adapted for human occupation. They burn large quantities of fuel in proportion to the result attained, and though the cost of the apparatus in its unfixed state may seem but small, the expense of the brickwork required to set and inclose it is often large.

The great point to be arrived at on any system is to warm every part of the interior equally; and to do this is not so easy as it seems. Unequal heating is the principal, though not the only, cause of draughts, since the air from the cooler parts of the building is sure to be drawn towards the warmer parts. By its coldness it condenses the warmer air, and so forms a partial vacuum, and into this vacuum it rushes. Everybody knows the unpleasant draught which issues from cupboards and similar inclosures in rooms where there is a fire. A similar draught, on a much larger scale, is sure to proceed from imperfectly-warmed recesses opening into a church, no matter whether they are used as organ-chambers, transepts, chancels, or anything else. And if, on the other hand, such recesses are overheated, draughts will set from the main area of the church in their direction. End galleries are often a source of draught, especially if they are nearly unoccupied, and if they contain, as sometimes happens, a large proportion of window-surface. The warm air passes along near the ceiling of the nave, cools itself against the glass at the end, and descends nearly to the gallery floor after doing so. It is then sucked back towards the nave by the condensation its coldness produces, and falls over the front of the gallery like an invisible cataract. But though it is invisible, its limits can easily be traced. The whole circulation of the air in a building may be made clear to the eye by sending up small balloons of gold-beater's skin inflated with ordinary coal-gas, and weighted so as to have very little tendency to rise.

This last case is an example of draughts caused, partly by the natural coldness of an imperfectly warmed recess opening into the church, and partly by the actual cooling of the warm air against a window. And what happens with a gallery window, happens, more or less, with all windows. The warm air touches the glass, cools, and comes down on the heads of people below. Draughts of this sort are generally set down, at first, to imperfect fitting of casements, or the neglect to cement the glazing properly to the stonework; and such causes as these, where they exist, should, of course, be removed. But the draughts that are occasioned by any direct blow-in from the outside, are seldom very serious, and are always easily cured.

A downpour of cold air from the roof or ceiling is very unpleasant, and unless proper precautions are taken, not very uncommon. The heated air rises and rests against these parts of the building, then condenses against them, and comes down. And if the coolest part of the area—the part with fewest heating-pipes or hot-air inlets—happens to be just below the highest part of the ceiling, the downpour is likely to be more rapid and annoying. The cooled air, in such a case, will be sucked forcibly towards the warmest parts of the building, whether they are its sides, its ends, or some of the recesses which open into it; and without any leakage or direct blow-down, this constant fall of relatively cold air may become a serious calamity. It does not need that the descending air should be actually cold. If it is thus in rapid motion, say at the rate of 5ft. or more per second, it will have all the chilling effects that are most undesirable, even though it may be only a very few degrees below the general temperature of the building.

These are the first dangers that need to be guarded against in warming a building—draughts from ceilings, draughts from windows, draughts from galleries, and draughts from recesses. And it must not be supposed that, to get rid of them, we only need a sufficiently powerful heating apparatus. On the contrary, it is chiefly the heating of the building which sets such draughts in motion. Go into the most draughty church when it is unwarmed and unoccupied, and the draughts, unless they are caused by an actual blow-in of the outer air, are hardly perceptible. Set the heating apparatus at work, and the draughts come into action directly. A circulation of air begins, and if this circulation is too rapid, it becomes a serious evil.

To prevent those cold currents which are caused by the chilling of the air against the window-glass, there are two or three expedients. The use of double glass will greatly lessen them. On the other hand, this entails some loss of light, which increases as the glass, not being easily cleaned, grows dirtier with time. Hot-water pipes placed below the windows will counteract the chill more satisfactorily, and hot air in the same position will have a similar effect. Cold draughts from recesses can, of course, be stopped by putting more heating pipes or radiators, or more hot-air outlets in the recesses which produce them. The downpour of air over a gallery front may be checked by a line or lines of hot-water pipe behind the gallery railing or parapet. It is more difficult to deal with draughts from the roof. First of all, it is well to see that the walls have been carried right up, and made good to the roof covering, for beam-filling is one of those easily overlooked items which some foremen think they do their employers service by omitting. When this is ascertained to be perfect, it is desirable to inquire if the system of exit ventilation acts properly. A little leakage in a ventilating trunk, or the leaving open of a door or a valve which ought to be shut, will probably turn the outlet system into an inlet system, and will let in the outer air at the top of the church instead of at the bottom. If neither of these faults exists, any downpour of air from the roof is pretty sure to be the result of its cooling there and descending. The question is: How to keep it from cooling. Hot-water pipes just below the highest part of the ceiling would form an excellent remedy; but, except on the high-pressure or small-pipe system, there are considerable difficulties in the way of getting them there. Hot-air flues carried up from the basement, and opening near the highest point of the interior, are perhaps more manageable. By these or similar methods the cooling of the air against the roof surfaces can be neutralised, and, by means of dampers, the amount of hot air sent up can be regulated according to circumstances.

All systems of warming and ventilation need intelligent management. There is not, and there probably never will be, any self-acting system, which, once put in, will work automatically in all states of wind and weather and outside temperature. The quantity of air which will enter the building by the ventilating inlets is enormously greater on a cold day than on a warm one, and the extent to which these inlets are opened needs to be carefully regulated accordingly. In any system, too, which aims at perfection, what may be termed the draught-destroying section of the heating apparatus should be separated from the section which does the general warming. There is a considerable part of the year, in spring and in autumn, when warming of the building as a whole is not required, though at the same time down-draughts from windows, ceilings, and galleries are apt to be troublesome. What is wanted then is to work this supplementary part of the heating apparatus without working the main part. This implies the keeping of the two parts distinct from the first, if not necessarily the use of two fires and of two boilers. Where the two parts are entirely separate, the high-pressure hot-water system might be conveniently used for the draught-destroying section, and the low-pressure system for the general scheme of heating.

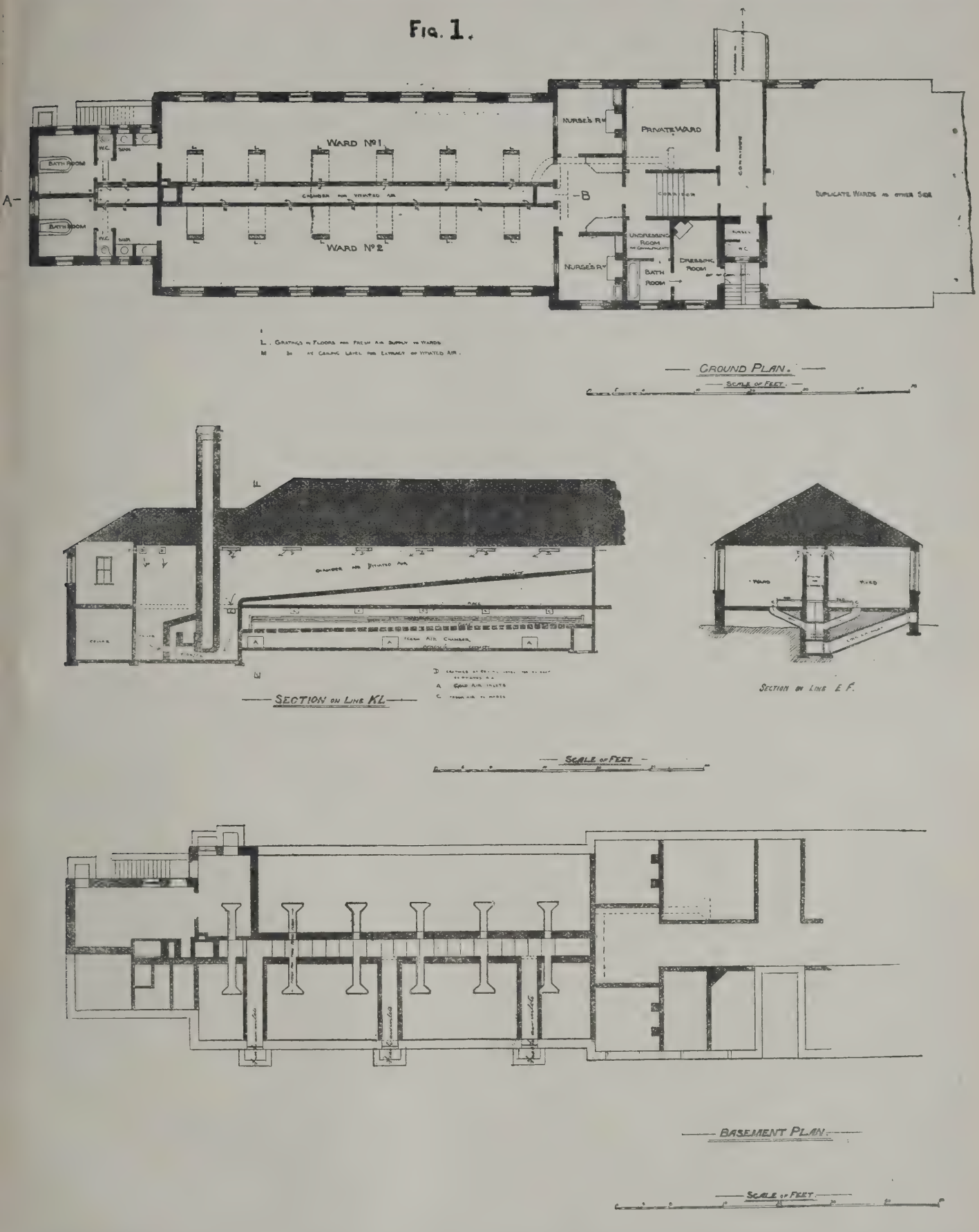
If competing tenders are invited from several heating engineers, the number of degrees to which the internal air must be raised above the external should be definitely stated, so that they may all compete on equal terms. For example, such a clause as the following may be used: "The heating apparatus must be capable of raising the temperature of the air in every part of the church 25° Fahr. above that of the air outside the building, whenever the latter is at or below 40°, and it must do this within eight hours after the fire is lighted, without over-driving the apparatus. The inlet and outlet ventilators are to be closed during the testing, and the building is to be unoccupied by a congregation." And it should be clearly made known, too, that the lowest tender will not necessarily be accepted. It is a very short-sighted policy to adopt an ineffective system of heating because it looks cheap. The heating contractor, it is true, may be bound in his contract to alter the apparatus at his own cost until it produces the specified temperature. But this means, first of all, delay and discomfort to the congregation during the period—usually long—which is required to convince the contractor that the apparatus is not powerful enough. Then it means more discomfort while pipes are being taken up and relaid. It means the cutting about of the building in unforeseen and objectionable ways, and, finally, the production of the specified temperatures by the adding of coils and other awkward appendages, placed, it may be, at the very points where no additional heat was ever wanted.

In comparing the cost of various heating schemes, it is important to ascertain what quantity of brick trenches and iron gratings each will require. The cost of the trenches is not usually included in the heating engineer's tenders, and this part of the work has to be done by a builder. Where there is much of it, it may form a rather serious addition to what purports, according to the tender, to be the cost of warming a church. With regard to the three principal modes of warming — namely, hot water under low pressure, hot water under high pressure, and hot air—the first is the most durable and satisfactory for the general heating of a building, while the other two may conveniently be used for dealing with draughts and local sources of cold.

A PATENTED FEVER-HOSPITAL PLAN.

In the Building News for the 11th inst. we gave a description of the Bradford Fever Isolation Hospital, erected in the Leeds-road, from the designs of Mr. W. J. Morley, of the firm of Messrs. Morley and Woodhouse, of that town. To-day we publish two plans and a section showing the exact arrangement which constitutes the subject of the patent, and it will be readily seen by these drawings that the main idea consists in the extraction of the foul air, and the destruction of germs or bacteria in it by means of a furnace. All the windows are made tight, and the fresh air is let in by three shafts from

FIG. 1.



the outside, carried under floors and into the lowest compartment of the 3ft. space between the two wards. Above this compartment, and divided from it by flags with open joints in another compartment, are placed the heating pipes, and from this compartment flues are carried into the wards which conduct the fresh air (warmed in cold weather by contact with the heating pipes last named) into the same through gratings in the floor, one being placed at the foot of each bed. Above the compartments above named is an extracting flue made perfectly air-tight, and into this flue openings are made at the ceiling level of the wards over each bed. A powerful furnace, with honeycomb firebrick divisions, is placed in the cellar at the end of this flue, and this furnace draws the foul air out of the wards, and it passes through the furnace and out into the open air by a large chimney. Thus all vitiated air from both wards, w.c.'s, bath-rooms, &c. (which are all connected with the flue), passes through a furnace which is heated up to at least 800°, and therefore is more than sufficient to destroy all obnoxious germs. The working of the scheme has been properly tested by the anemometer, and it has been found that at least 10,000c.ft. per hour per patient can be passed through the wards and out through the furnace, and that at the same time in cold weather a temperature of at least 60° can still be maintained in the building.

The system is intended mainly for smallpox hospitals, and it is in the working out of the idea of doing this that the advice given by Dr. Burdon Sanderson, of Oxford, has been followed.

"BUILDING NEWS" DESIGNING CLUB.

A SMALL CONVALESCENT HOME.

THE first subject for the new session of our Designing Club has proved exceedingly popular with our contributors, if we may judge by the number of designs sent in; and it certainly is a subject for congratulation that so many have taken up the work of the season with so much energy and determination. The following are the conditions which we issued for the competition:—

A.—*A Small Convalescent Home* on a detached site at the foot of a cliff facing the sea. The frontage to be 100ft. long, and measuring 60ft. deep, with a fall from back to front of 5ft. The building is to set back 15ft. from the frontage line. Accommodation to be provided for twenty-four patients, equally divided among the sexes. The day-rooms and dormitories are to overlook the sea, and have open verandahs, reached from a glazed door either immediately out of or adjoining the several rooms. A bath-room, lavatory, cloakroom, and two w.c.'s in each of the two departments, and also a nurse's bedroom commanding the dormitories. The administrative department is to be located in the centre of the block, and is to include a committee-room, a matron's sitting-room, a dining hall entered from both departments, a kitchen, and its usual offices. Separate entrances and staircases to be provided. A small turret for bell and clock to form a feature in the design, which is to be treated in red brick and tile hanging, with tiled roofs.

From the numerous designs submitted, as might be expected, not a few were very nearly equal in merit, and it was not an easy task to determine which plans should be awarded the first places. None, to tell the truth, are quite suitable for erection as they stand. All have faults, and we are far from supposing that the chosen designs are all that could be desired. On the whole, they are the most free from objections, and their merits are conspicuous. "Smilash the Goth" we place first, "Ayrshire" comes second, and "McGinty" ranks third.

Taking the plans first, it will be seen that "Smilash" locates his dining-room in a sort of mezzanine arrangement, half-way, as it were, between the two floors, with windows at the ends of the hall, and a china store and serving-room, with lift, at the north end, where there is a private staircase from the kitchen. The entrance halls to the two wings are the weakest part of the plan; and the cross passage, with its borrowed light from the kitchen, seems hardly necessary in so small an institution, particularly with the committee-room and the matron's room doors placed as they are. The effect is crowded and cramped. The same area could be made with a very little trouble so much more spacious in arrangement. The staircases are well lighted, and the dayrooms are spacious and square. This form for the two dormitories is not quite the best for arranging the beds to the best advantage, and the toes of the patient who sleeps in the alcove would be uncomfortably near the nose of the occupant of the first bed in the central row. The nurses' rooms are nicely managed. In architectural treatment "Smilash" is too ambitious in detail. The inverted arches and the lower verandah front are samples of the kind of thing we take objection to. A little more simplicity another time would be an advantage. The perspective is too long drawn out for correct proportion. A little more height to the chimneys would improve the elevation, and under a cliff the increased draught would be needed. The drawings are well grouped on the sheet, and are business-like. "Ayrshire" is more simple, and in this respect we like his design better. He places his dining hall to the rear, and makes it a less important room. The male and female entrances look awkward with the bend in the passage-way, and it is not quite clear how the wall to the angle of the dormitories is carried over the staircase. Of course it could be done; but it is not good planning to create such contrivances. The landing would be none too light, and the bath-rooms are none too large, if big enough, which we question. The dormitories are nicer in shape than in the first plan, but they require open fireplaces. The man's room is conveniently disconnected from the maids' rooms. A block plan and perspective are missing from this sheet of drawings. We took this into account, however, in making our choice, so that no injustice really has been done to "McGinty," who comes next. The last named, who is one of the best contributors to the work of our Club, ranks third, and we like his plan in many ways better than either of the first two; but in elevation his building looks too much like a seaside villa, while in its arrangement the waste of space in passages and on three staircases, combined with their awkwardness, relatively prevents a better position being taken. We quite expect "McGinty" to score higher another time. "Hilarius," in his plan, has the dormitories running north and south, with windows east and west. The dining-room is contrived at the rear, with a central and dark corridor. Much space seems lost by the third staircase, and there is a want of care in the minor parts of the planning. The committee-room seems needlessly large, and the stores are pinched and badly placed. The elevation would work out fairly well; but it is not particularly clever, and, saving the merit of simplicity, calls for no comment. "Symbol" sends a design of curious conceit, original but ugly in elevation, with a plan of some merit. The matron's room divides the two sexes; but behind her room are the staircases, and these would be very dark. The dormitories are capitally arranged, with all the beds against walls, and not in front of windows. "Pen" has a good plan, save that he, too, spoils it by dark halls, over which, by the way, he wastes more space than necessary. The dining-hall is situated between the two wings on the ground floor, but as the matron is located beyond the kitchen to the left, and the committee-room is in directly the other position to the right, we cannot describe the arrangement as perfect as it should be. The dormitories are good, but the nurses have an associated room in common between the two wards. What "Pen" was thinking about when he carried up the frightfully ugly bell and clock-turret over the bay of the male ward, we cannot think. There is not a good point about it. The verandahs and windows are suitably treated. "Nil Nisi Bonum" overdoes his elevations. Three gables, two tower-like bays at the ends of the façade, and a clock flèche in the middle, besides two gables in the return fronts. All this is crowded and dear, but not really bad in detail. The plan is business-like, but small in parts, and dark decidedly. Dormitories should always have cross ventilation, if possible, and the nurses' bed and sitting-room should not be combined in institutions of this kind. They need a bedroom each, and 12ft. by 10ft. is a roomy size; but 12ft. by 12ft. is not really big enough for a dormitory for three adults, such as this plan provides for both sexes. About 60ft. super. is the required space for each bed in sick cases. "Black Prince" sends a very odd design, having a sort of German high-roofed brick and stone tower in the centre, and verandahs on either side constructed of big vertical timbers, running in one piece from ground to eaves, and with curved strut pieces, making a V-shaped form of the same proportions. This looks very odd in perspective. The plan should have had separate staircases for the two sexes, and so much space should not have been wasted in the main part of the front on a committee-room, surgery, and laboratory. The wide hall is a good feature; but two entrances are desirable in such an institution. The dormitories have no cross ventilation, and the oriel bay window which makes such a grand feature in the centre of the front is really of a very subordinate use on plan in a passage between the two balconies. "Albyn" has rather a good elevation to his design, practical and simple, in a square brick and tile style. His plan is marked by study; but the loss of space on the ground floor under the w.c. and bath-room above is wasteful, crude, and foolish. "Jean" is neat, and deserves praise for ingenuity of plan, for there are many merits in his thin-looking design which leads us to expect much more from him than this, his maiden essay. "Leo" is rough and bold, not to say reckless, in his drawing. We refer chiefly to the perspective done big on the sheet. The plans are neatness itself. The walls are expensively thick inside the building, and the ground-floor rooms are too small. The upper floor is very much better, and the arrangement is not bad. "Cottonopolitan" has caught the thread of our intentions; but has lost the main idea in a labyrinth of passages, bays, bows, angle-set borrowed lights, &c. His main front looks very well; but everything is made much too subservent to it. "An Old Hand" is not so happy with this design as we could wish; but his elevation is far better than his plans. "Q. E. F." merits the same remark, and while his geometrical elevation is very carefully and well drawn, his sketch is rough, blotty, and crude. The day rooms and dormitories are dark and badly planned in the matter of the relative positions of doors, fireplaces, and windows. "Red Brick" is very careful too, but a fancy for "features" carries away a better judgment, and so in the result we have an overdone treatment too full of points for a simple review like ours to describe. "So quaint" we presume is his intention. "Baluster" gives us a sketch-like composition, with a façade carried by a piazza of stone columns and a queer sort of gable in between. The plan lacks study of its parts. "Finem Respice" deserves to be at the end, as his plans came in late. Another time he must be more careful. His plan shows that he knows what he is about, though he wastes money on 14in. internal walls and space on dark lobbies and passages. "J." in a circle is neat and comely, sending a design which would look better in execution, but the plan is poor. The other designs are grouped in the following order of comparative merit, but we cannot pretend to have placed them in absolute order. They vary so that this would be hardly practicable. "Go-bo," "Hales," "Love's Labour?" "Sunset," "Jackey," "Compass Box," "Hut," "Ko-Ko," "Sparrow," "The Idler," "Orient," "East Anglia," "Ilex," "Ivanhoe," "Western," "Plan," "Sphinx," "Pastime," "Unitate Fortior," "Norman," "Jamrach," "Punch," "The Useless One," "Persevere," "Sanitas," "Wasp," "Herbert," "Pendragon," "Sector," "Streona," "Johnny Jones," "Compass" in a circle, "Flute," "Magnet," "Black and White," "Mica," "Filiolus," "G. T. P.," "Nodrah," "Sniktaw," "Graham," "Hardwick," "La Crosse," "Devil's Chimney," "Airedale," "Peterborough," "Ich Dien," "Yorkshire Tradition," "Mars," "La Cigale," "Old Postage Stamp," "Wit," "Faber-niger," "Boreas," "Tempus Fugit," "Leontes," "Westward Ho" (unfinished), "San Juan" (ditto), "Thrift," "Terracotta," and "S. X. X."

SUGGESTIONS FOR THE PRACTICAL EDUCATION OF AN ARCHITECT.*

I STRONGLY advise you not to confine your study to old work; but watch the current architecture of the day, so far as it is worth watching. It has always been the laudable practice of your Association to visit new buildings and works in progress, and you cannot do better than continue that practice in the future. When one does find good modern work, there is something about it more inspiring and stimulating than about old work, however superior the old work may be. You feel that your own case is not hopeless when you see good work done by your friends and contemporaries, who are within your reach, not removed, like the great masters dead and gone, who speak to us only by their works. You there see also the application of novel materials and new ways of using the old, and you find in them suggestions for new design on your own part; and if there be any real life in the work you are studying, it cannot but be enlivening to be brought into contact with real living art in your own day and country. Bearing the same point in mind, let your reading be of a practical kind. Besides books of technical instruction in carpentry, masonry, brickwork, and so on, read such works on architecture as deal with it from the constructional as well as the historical and æsthetic side. There is no better reading of this kind than is to be found in Viollet-le-Duc's great Dictionary; his conclusions are sometimes fantastic, and his judgment prejudiced; but if you read carefully his article on "Construction," which occupies nearly a volume to itself, analysing and making notes as you go on, you will rise from it a wiser man, and will have got a better understanding of the nature and motives of Mediæval architecture than by any other reading I can tell you of. There is nothing comparable to it, unfortunately, in English; and, indeed, considering the mass of printed matter about architecture, it is wonderful how few books there are of any direct use to the student. Encyclopædias, dictionaries, and handbooks there are in plenty; but few of them go really deep into the subject. A work that professes to treat of all known styles,

* By T. G. Jackson, M.A., F.S.A. A paper read before the Architectural Association, Dec. 11, 1891.

ancient and modern, within the boards of an octavo volume or two, cannot be more than superficial. Even Fergusson's books, excellent as they are—capital, as far as they go—are more useful to the amateur than the student. Above all, do not try and make yourselves all at once encyclopædias of architecture. Confine your study at first, and, indeed, to a great extent all your life afterwards, to those styles which practically concern our modern use. Egyptian, Assyrian, Persian, and Indian architecture are interesting studies, and no educated man would like to be entirely ignorant of them; but the knowledge which contents an ordinarily educated man will suffice for you. Dare I say the same of Greek art? I approach the question with some trepidation; but to speak honestly, I should say that it may safely be put on one side by the student, and regarded, even in his riper years, rather as a splendid illustration of what art can achieve under certain conditions, than as having any direct bearing on his own work. With Roman art it is different: as the system of Roman policy permeates our civil constitution, and the roots of Roman speech intertwine themselves with our language, so did Roman architecture, in its progressive transmutations, give birth to all modern European styles, both those of the Middle Ages and those of the Renaissance. Roman art must be studied, though to my thinking—I say it with diffidence, and the consciousness that many of my hearers will disagree with me—it is most interesting when regarded in its parental relation to the styles to which it has given birth, and which will naturally be the main objects of your studies. It is not by reading books and studying illustrations that you will learn practical architecture. Reading about things is very different from seeing them; you will learn more by one visit to an actual building than by pages of description. Accustom yourself from the first to regard your books only as guides to teach you what to look for in real buildings, and follow up any course of reading by going to see for yourselves the things you have been reading about. In the same way, do not think that by drawing in an architect's office you will ever learn how designs will come out in reality, or even that you will thoroughly understand the meaning of your own drawings. Go, if you can, to the building itself; see for yourself how the details work out; how the different parts are constructed, what difficulties they present, and how the workmen surmount them. I have always recommended my pupils at the end of their term to put themselves for a season under a clerk of works, and help him set out the work and direct the workmen. I cannot say they always take my advice; but those who have done so have not failed to benefit by the practical knowledge they gained. Remember that your calling, as I said before, is to design for craftsmen, and this you will not do successfully unless you have a practical knowledge of craftsmanship yourself, which is not to be gained from books or in the office, without resort to the building-sheds, the scaffolding, and the workshop. What can be more absurd than to sit all your days indoors designing things which you never see made? You are safe only on the condition of copying accurately what has been done before, because, knowing nothing practically of the working of materials, you may, if you quit the strict path of precedent, be using your material improperly, wastefully, and at the same time ineffectively. Take, for instance, the very common error into which architects have fallen in their use of marble. You have been used to stone, and when an opportunity occurs of using marble, you think you have only got to go to work in the same way and your work will be as much finer than masonry as marble is finer than stone. You know, indeed, that marble was not treated in this way of old; but you think, perhaps, you can improve on the flat surfaces, the shallow sinkings, and the superficial mouldings of the old men, and do something better and bolder; and so you proceed to work it into the roll mouldings and deep under-cuttings to which you are accustomed in stone. The result, if you have anything of the artist in you, will disappoint yourself. One has seen too often examples of marble spoiled in this way with extravagant waste of labour, and an effect, after all, inferior to that of stone. They have failed because the architect has misused his material, and this most likely because he has never practically studied the way of working it. Had he accustomed himself to watch carvers and masons working marble laboriously with drill and chisel, he would have seen why marble was always treated by the masters of old with shallow sinkings and square returns, without under-cutting, and he would have learned that the plain surface treatment he despised was needed to give due effect to the colour and texture of the material. He might even have risen to the notion that Classic architecture itself, which is largely a marble style, derived its peculiar details from the convenience of the masons who had to work this stubborn material. Take, again, the case of wrought-iron work. You know, from old examples and from drawings, that ironwork can be twisted and hammered into certain forms, and welded together while hot; but you have never seen a weld made, or a scroll beat or hammered into shape. As long as you keep to designs that have been done already you may escape disaster; but if you have the right stuff in you that makes an artist, you will soon grow tired of that, and want to design something original. You make your design, and write your instructions with a light heart—"Weld these together," and so on. As a matter of fact, perhaps the smith cannot weld them, for reasons unknown to you; but he puts the work together in some other way, as like your drawing as he can, and very likely you are satisfied. But the work nevertheless is a sham: you designed it for welding, and the smith has made it look like welding, when it is really nothing of the kind. Now had you gone and seen him with your drawing, and watched him hammering the iron, you would have understood his difficulty at once, and if you were really an artist you would there and then have taken out your pencil and altered your design to suit and express the methods to which the smith was obliged to have recourse. I might go on with examples from all the other trades, how, for instance, the work of carpenters and joiners is often doubled uselessly, and the expense also doubled uselessly, by framing being contrived so as to force the craftsman to do by chisel what with a little management you might just as well have enabled him to do by plane. This would be obvious to you at once if you were familiar with the workshop and saw how tools were used, and how labour might be economised. But time forbids me to dwell longer on this subject; you will easily extend to all branches of construction and design the lesson I have tried to point in the foregoing instances. The sum of the matter is that there is no such thing as successful design without the legitimate use of materials; in this lies the secret of good and economical construction, and of expressive design. Without it you may sit all day in your office inventing fresh designs, but they will one and all be worthless. And the knowledge necessary to enable you to design sensibly, so as to make the best use of the means at your command, is not to be had from books, but from actual study of good work, both ancient and modern, and from actual contact with handicraft and handicraftsmen. I trust, therefore, that your educational scheme, which is now in process of elaboration, will include some mode of bringing your students into the workshop among the workmen, not of one or two only, but of all the trades in their turn which it concerns an architect to deal with in the course of his practice. I believe there would be no difficulty in this, so far as the craftsmen are concerned. Nothing would do more to help their work than to have a body of architects to deal with in the future who knew something practically of the trades for which they made designs and specifications, instead of men who, for want of knowledge, frequently set them unnecessary tasks, and lay upon them unprofitable labour. I would even go further, and say that it would be extremely desirable that every architect should actually learn some handicraft, so as to understand its difficulties and its possibilities; and by learning these in the case of one craft, he would be better able to appreciate them in the case of the others. But, even if you stop short of this, you may, at least, approach yourselves to the handicrafts in the way I have suggested, by shutting your books and flying off to the workshops, and learning how to design in a way that gives the workman no unnecessary trouble, makes the most economical and reasonable use of the materials, and satisfies the canon of art which requires that design shall be based upon construction, and be the outward expression of it. This brings us back to what I said some time ago, that the main thing an architect had to learn was *to construct well, with an artistic motive*. Let us compare this definition with that lately put forth from an autheritative source, and see how they agree. The President of the Royal Institute of British Architects, in his opening address on November 2, defines the ideal architect as "the man who unites the qualities of an artist, a constructor, and a man of business." Against this, so far as it goes, I have not a word to say. The inseparable connection—I do not say between architecture and construction, because architecture includes construction—but between design and construction is the text on which I have been enlarging to-night; if I have said nothing yet about business qualifications, it is not because I undervalue their necessity, but because I have been talking solely of architecture; and business qualifications, though as necessary to an architect as they are to all who mix in the affairs of life, are not architecture, and, moreover, cannot to any very great extent be taught. But the president goes on to say, "It is given to few to excel in all [these three qualifications], though there are many who, possessing a general knowledge of each, are proficient in one or the other. And is one who is distinguished by artistic taste to regard with indifference, or a species of contempt, others who may be less artists and more scientists? Or is one whose genius in construction to look askance at others who are more purely artists?" He does not go on to put a similar question with regard to those whose genius is more for business than for art or construction, whose claims to be considered architects he apparently did not find defensible. Now here I venture, with all respect to the President, to think he is wrong. As Mr. Norman Shaw points out in his letter to the *Times*, "He divides those who practise architecture into three classes; first, those whose proclivities are artistic; second, those whose genius is constructive; and, third, those who, *par excellence*, are men of business. We also make this distinction, and are fully alive to the necessity of good construction; but we think that the men forming the two last divisions, are, *as such*, not architects at all. The scientific constructor already exists in the engineeer, the business man in the surveyor and commission agent." Now, if it is possible to take an engineer or a surveyor, and by endowing him, to use the President's words, with "a general knowledge" of art, thereby to make him an architect, then good-bye to architecture as an art. I have in that case been merely wasting words to-night in trying to explain that architecture is not the result of adding more or less of art to sweeten the bitterness of construction or enliven the dryness of business, but a ruling motive, which must be present from the very beginning, and inspire and govern the construction itself. This view is totally irreconcilable with the officially-pronounced view of the Institute, that a "general knowledge of art" superadded to sound business habits or skill in construction will suffice to make a man an architect. This definition occurs in the course of the President's defence of the system of examinations conducted by the Institute, and imposed as tests on all who seek to become members of that body. And, as our subject to-night is architectural education, it is time to say something on this matter of examination, about which there is, as you know, great difference of opinion, not only between the Institute and outsiders, but even within the Institute itself. Examination is the contribution of the Institute to the cause of architectural education. "We do not teach," they say, "but we examine." Their theory is that the necessity of preparing for examination will direct the student in the course of his studies and give him system in his reading. I hope to show you that so far from these examinations being a help to the education of the beginner, they are, in fact, only a hindrance and distraction. In the first place, they put before him a wrong motive. He learns, not in order to know, but to pass, and he will get no solid good from study pursued with such an object as that. Looking to examination as his goal, he will not—dare not—work in any direction that does not lead that way. He may have a special bias to some particular branch of architecture, and desire for a time to give himself to it exclusively, but we cannot linger; the examination awaits him, and he tears himself away and dilutes his attention to spread it over the whole field of architecture. He may know himself to be ignorant of some other branch of

his subject, and wish to work it out thoroughly and master it, but he knows it will not pay with the examiners, and he is forced to content himself with that superficial knowledge which is all he can hope to master in the time and over so large an area of subjects. The system which was promised him for a guide and help proves only a clog to his progress. Let me quote the admirable remarks of Prof. Aitchison on this subject:—"System is an excellent thing, and if it only means the inclusion of what an architect must know, nothing can be said against it. But a man must take care that system does not prevent him learning anything. I have been through examinations, and when I started to prepare myself I spent several days in laying out a systematic course of study, and I endeavoured to follow it, but I found there were subjects that I could not master in the time set down for them. If I had stuck to this systematic system I should have learned nothing; and what I had to do was to learn the subjects and ignore the system." But, we are told, the examination has the inestimable advantage of enabling the students to test "the extent and accuracy of their knowledge." I believe it does nothing of the kind. On the contrary, it enables them to play off their shallow knowledge, or perhaps that of their crammer—for that worthy has, I hear, already appeared on the scene—against the wits of the examiners. In order to pass, the candidate must answer a certain number of questions on a wide range of subjects. It is a pure chance what he will be asked, and he loads his mind with a general superficial knowledge—a kind of mental dust-shot—which spreads so wide as to be sure of hitting something, though it will not penetrate very deep. This is not the kind of examination that enables the student to test his own knowledge. It is not like the examinations of the pupils by the tutors under whom they have been working during the term, the object of which is to ascertain whether the lessons have been properly understood. It is not like the examinations at the Universities of Oxford and Cambridge, where, again, the subjects are clearly defined, and have been all taught during the collegiate course by the same men who examine. The Institute examinations are totally different, for though it examines, it does not teach, and has no students. But the most fatal deception practised upon the innocence of the student is the pretence that it is an examination in architecture at all as an art. It is an examination of what can be learned from books and drawings, but contains no test that the student has ever carried his knowledge afield and tried it in the actualities of life. Accepting for the moment the President of the Institute's threefold division of architecture into art, construction, and business habits, it is evident that only one of the three can really be brought to the test. You may examine a man in construction, no doubt—that is to say, in construction apart from art, but how are you to examine him in his business qualifications? I acquit the President of including among these the extraneous pursuits which many men follow besides architecture, such as belong to the land surveyor and estate agent, the lawyer, and the speculator in building schemes—a class of pursuits so foreign to architecture that no man who follows the two can hope to succeed in both. I assume him to mean such a faculty for keeping expenditure within bounds, and insuring that his employer gets his money's worth, and of controlling the builder and workmen with tact and good temper, as is necessary if things are to go smoothly and well. But who is to examine the student in that? In the first place, it is a matter of habit which can only be acquired by actual experience, which the young architect can only learn as he goes on, for assuredly no one can teach it him; and in the second place it is largely a matter of natural tact and temperament, which may be improved, but cannot be supplied if it is absent. Still less is it possible to bring his artistic qualifications to the test of examination, if there is any truth in the picture I have to-night attempted to draw of what they should be. You may ask him questions in the history of the art: he may satisfy you as to dates and names, periods and examples; but, as I have already said, he may have all that at his finger's ends, and yet be incapable of architecture. He may be a good antiquary, and yet remain totally devoid of imagination and sense of beauty, without which he can never be an artist. You will never invent any test which you can safely apply to qualifications of this kind; if you try to exercise it you will infallibly fail to keep out those who are unworthy, and probably also shut your door in the face of some heaven-descended genius whose originality you may fail to appreciate. Observe, I entreat you, that this is not a question of examining for a prize, when you compare one design with others and give the reward to the best. That is easy enough and fair enough, and in its prize fund and scholarships the Institute has a grand opportunity for stimulating and distinguishing art students. But we are now considering a totally different kind of examination—a qualifying one—one for excluding or admitting a student, primarily to the ranks of the Institute, and, secondarily, to those of the profession. For though the Institute at present disclaims any ambition to make architecture a close profession under their presidency, still it comes to the same thing, for they aspire to sweep us all into their net, and their dream of the final state of architecture is that every architect shall perforce have passed into the Institute through the gates of examination. The illustrations by which the President tried to defend examination are altogether irrelevant. "Is not life," he seems to say, "one long examination? Do not artists submit to examination when they send their pictures to the Academy? Does not everyone who is employed practically submit to examination by his employer?" and so on. Now all this is really trailing a red-herring across the path. One might as well ask whether it was not by examination that butcher Jones secured my custom instead of butcher Smith. The examination we protest against is a qualifying one, one which you must pass in order to get your bread in a certain calling; and it is obvious that this is not the case with the President's illustrations. Painters who are rejected at the Academy are not debarred from selling their works to anyone who will buy them, and there is nothing in my dealing with Jones which prevents Smith from selling his mutton to other people. I do not say that in theory it is absolutely impossible to construct a system of examination so rigid that every incompetent pretender to architecture shall be excluded. But who is to be trusted to keep the door? How many in a generation would be found worthy to pass it? For instance, if it were tried to-morrow, would all the present members of the Institute be found on the inside of the door, or would a good many be left gnashing their teeth on the outside? Such a system of selection is impossible, and yet anything short of it is a mere imposture and a sham. The majority of candidates are, and must be, mediocrities, and you will have to admit them with their middling gifts, and to suit your standard to their capacities. If you argue that they will at least be no worse for being examined, I reply that they will certainly be no better, and that at all events it would have been something not to have set your seal on them by way of recommending mediocrity to the public. However, examination is now the banner under which the Institute sails, and the next step is to be the extension of this test to the different grades of that society. The President asks why the Fellows are not to enjoy the same blessings as the Associates, and suggests that they too should be required to pass an examination for the higher degree. And so we go on till, if I may be forgiven for trifling with so serious a subject, one may imagine the Presidential chair thrown open to competition in order that its occupant may not be excluded from advantages of examination enjoyed by the inferior members. I have dwelt at some length on this matter of examination, because at the beginning of your new educational system it is all-important that your students should make up their minds what they are trying for; and because, if your schools become mere places for training or cramming architectural students for passing examinations, you are, in my humble opinion, going the safe way to reduce them to uselessness, and to alienate the interest of all who look upon the study of art with different eyes. The note of alarm has already been sounded; when the Institute was considering the question of a grant of money to your schools, one speaker proposed that the grant should be given at the rate of so much a head for every one of your students who passed the Institute examinations. How this was settled I know not; but I do know that the idea that this would be the main motive of your teaching has prevented several architects from aiding you whose advice and experience would have been of infinite service. Believe me, that if you propose to your students such an end as this, you will be putting before them an unworthy motive, and your schools are predestined to barrenness. On the other hand, tell your students that they come here simply to learn to be architects, without any secondary aim; teach them architecture in all its aspects, constructive and utilitarian, but always in conjunction with good design; make them learn a few things at a time thoroughly rather than many things lightly; insist on having a reason for what they do, and hold them back from a fresh step till they have mastered the first; bring them as soon as possible into touch with the craftsmen, and make them craftsmen themselves if you can; let them learn from things rather than from books, enlarging their knowledge by experience of technical methods, which is the readiest way of sowing in their minds the seeds of fresh elements of design; above all, teach them to keep bright by constant use such strains of originality as their nature possesses, and you will make your schools true nurseries of architects; though I think it very likely your students would be plucked in the Institute examination. When I reflect that it is with you, gentlemen, the younger members of our craft, and with those students whom you are now undertaking to train, that the hope of English architecture lies, it seems impossible to overrate the seriousness of the crisis. Your new schools may do much to help our art onwards, or they may aid in stifling it under the dull weight of professionalism. I put before you good and evil, artistic life and artistic slumber; it is for you to make your choice.

FRENCH IMPRESSIONIST PICTURES.

A SMALL but very interesting collection of pictures is on view at Mr. Collie's Rooms, 39B, Old Bond-street, by La Société des Beaux Arts. These comprise works by several great French impressionists, including Degas, Monet, Monticelli, Pissaro, Sisley, Ribot, and others of the same school. To the taste of the ordinary picture-gallery public these works may not be very acceptable, as they are far above that standard of conventional art which the English picture-buyer and critic have have accustomed to regard as excellent. The pictures of Corot and Degas appeal to those only who have not made traditional convention absolute canons, and who can admire the beauty of form and colour apart from those technical qualities which are usually met with in English, Dutch, and other schools of painting. To such Nature, in all her soul-stirring truthfulness, mystery of light and colour, has more poetry and charm than those literal transcripts which seek to reproduce the forms and outlines and colours of objects, as perceived by sense devoid of feeling and emotion. Instance M. Hervier's "Cour de Ferme," a delightful, amber-toned view of a farmyard, is not a mere transcript; it is not a finished picture of all details, but the poetry of form and colour, which the painter has tried to realise for us. Still more so is the very fine luminous landscape by M. Monet, "Effet de Neige," (1) in which the snowstorm effect over a town and meadows is conveyed to the eye. The distant houses, above which stands the church, form the distance of a wide expanse of meadow, covered with flakes of snow, which gleam in the light, and fill the air and sky. The painter has given us the impression of the flickering snow-drift as far painters can, the vivid brightness of atmosphere softening the tones of the distant objects. A broad landscape (4) by Daubigny is another idealised picture; another by Monticelli, described as "Paysage avec Figures," (8) is a beautiful example of this impressionist. It represents a hillside, with groups of girls and children reposing on the grass, the evening sun lighting them up with a warm glow intensified by the shadows. Against the horizon of the hill is a dark figure. Simple in composition, there is a wonderful sense of atmosphere and sunlight; the painter just gives us enough to realise the charming effect of sunshine on an upland of pasture overcast by a cloud. The technique is revealed only by close inspection of the brushwork. The darker tones and colours are subdued and reduced in tone by lights put on over the shadows, producing the effect of atmosphere and sunlight. But we turn with greater admiration to the same painter's

"Souvenir d'Ecosse" (10), a rather irrelevant title, for a landscape composition with groups of female figures. A background of dark hills inclose a party of maidens, who have all the charm and grace of pose and colour of those of Watteau, but with a delicacy of outline and subtlety of tone at once unique. The grace and movement and rhythm of the scene, the delicate modelling of the faces, and the graceful outline of draperies, never prominent, but rather suggestive of ideal beauty, are remarkable in the painter's work. As in all good impressionism, definiteness is lost in pursuit: we mean to say that fresh beauties are revealed at each look. We do not catch all at one glance, but we are constantly discovering some form or face, or some bit of delicate colour in the subtle blendings of the composition. A companion subject, "L'Automne," by the same painter (14), is another idealised landscape, crowded with forms of beautiful figures, brilliant in their draperies. We might imagine the subject to be a masquerade, or one of Watteau's garden parties, but the deeper meaning of the artist appears in the suggestion of autumnal richness of tone and colour. The grouping and subtle decorative harmony of tone are what mainly captivate us. Two small studies by Hervier, "La Bûcheronne" and "La Femme à Charette" (15) are clever; the first, a small figure study of a woman carrying a bundle of wood on her back, with a child by her side. Both are full of spirit and meaning. The works of M. Degas, who sends seven pictures, are deserving of attention. "Après le Bain," a nude study of a female who is seated on the edge of a bed, after a bath, in the act of turning out the lamp, is clever as a figure study, and is in coloured crayon apparently. "Une Danseuse" is a sketch in chalk, and No. 18, "Chevaux de Courses," is a pastel drawing of racehorses, remarkably clever in the drawing and foreshortening of the bodies and limbs; but one of his chief works is his "Chez la Modiste," a girl trying on a hat opposite a mirror, behind which the modiste stands with another hat in hand. The contrast of the figure of the young lady against the golden-toned background is happy, the drawing of the girl's head and her expression are exceedingly clever, and the light and shade well managed. Even more remarkable as a feat of imaginative composition is "La Répétition," a ballet-girl tying her shoe-strings behind one of the wings of a stage, while beyond are seen the dancers under the lights—a wonderful picture, resembling the same artist's work at the New English Art Club. The graceful drawing of the sprightly *figurante*, whose head is bent down facing the spectator, and is adjusting her shoes, encircled by the circumference of her short skirt, makes almost a flower-like form; the foreshortening, and the graceful lines of the figure are dexterously executed. The expanse of stage and the dark shadow of the wing give value to the bright lights of the ballet going on, and both in drawing, light, and colour, this work is very clever. A lady seated near a window (21) is a very effective study of contrast of figure in shadow against the strong light of the window. "Un Café Concert" is a rather clever sketch. Some of these are painted in oil on paper. There is one Corot, a grey-toned view of the village of Flesselles, and another, No. 7, a fine sunset, throwing into relief the darkened landscape, both representive of the late impressionist's work. M. Ribot is represented by two very effective studies of still life (5 and 13), in which the light and shadow are skilfully painted. The small Dutch landscape by M. Hervier (11) is characteristic.

ARCHITECTURE OF THE RENAISSANCE.

THE third part of Messrs. Gotch and Brown's folio of photographs* in illustration of the Renaissance mansions and other buildings in England from 1560 to 1630 has just been issued to subscribers by the publisher, Mr. Batsford. The contents of the present number may be said to be thoroughly representative of the period chosen for illustration, and richness of the work selected is unquestionable when such examples as Kirby Hall, Rushdon Hall, Blickling Hall, and Audley End supply subjects for the camera. The plans, too, where given with the descriptive account of the buildings, greatly enhance the interest and value of the photographs. Kirby Hall, for instance, is shown by John Thorpe's plan from the Soane Museum, and also by a plan recently made from the present ruin. There are several sketches, too, of details in the margin of the letterpress. It seems an oversight on the part of the authors not to give references to the professional journals to illustrations previously given of the buildings here represented. Richardson's "Architectural Remains" and the A.A. Sketch Book are referred to for other illustrations, but the whole series which have appeared, for example, of Kirby Hall in our own pages are not mentioned, notwithstanding that Mr. Langham's drawings (Feb. 25, April 7, and May 12, 1876) of the house which we then gave are perhaps the best that have ever been published of Kirby Hall. Rushton Hall, another Northamptonshire mansion, is the second subject, with two capital photographs and a plate of details, besides a plan. A foot-note refers here to Tom's engraving of "The East Prospect of Rushton" as being issued in 1750, showing also the church and stables. Few people can refer to this old plate, so that it would have added to the value of the note had it been stated that this old view was reproduced in the BUILDING NEWS for Aug. 11, 1882. Readers may now make a note of it for themselves. It would have been better still had Mr. Gotch reproduced the plate itself, with his description, for Winstanley's view is an exceedingly interesting one. Blickling Hall, the famous house of the Hobarts in Norfolk, is illustrated by two capital photographs—one of the entrance front in detail and the other showing the grand staircase. A plan of the house, as it exists now, is given in the letterpress. It may be interesting to note here what the author evidently does not know, as he has not mentioned it in his description, that the ornamental pedimental terminals over the upper windows of the façade in the gables are made of cast iron and coloured like stone. Now, however, the rust has destroyed the pigment, and the red in parts is clearly visible. A sheet of plaster ceilings shows some designs of this character from Rushton, Blickling, and Audley End. The latter building is further represented by only one plate, and that illustrates one of the porches of which Mr. John Evelyn makes mention in his quaint description, saying it is "a mixed fabric 'twixt antiq. and modern, but observable for its being compleately finish'd and without comparison is one of the stateliest palaces of the kingdom." A copy of Thorpe's plan of the house adds great value to the text of the book, and some scraps of detail increase its interest if they do no more than enliven the page. Knole House, Kent, is beautifully represented by two photographs by Mr. Essenhigh Corke, of Sevenoaks, and a well-condensed account of its history accompanies the plates. The grille design and rain-water head drawn in the margin are spiritedly sketched. The apartments illustrated by the camera prints are of the Cartoon Gallery and the Ball-room chimneypiece, giving a large-scale representation of the curious and handsome frieze, divided into bays by grotesques in the shape of brackets. The plate of details of old woodwork, &c., will be useful for those who copy old work and palm it off as specially good and original work of their own. The ceiling of Knole House staircase we have lately seen reproduced in this way. North Mymms, near Hatfield, is a pretty brick house in Hertfordshire, with two ogee-shaped roofed towers; Lilford Hall, Hinchingbrooke Hall, Dingley Hall, Rothwell ruined market-house, and Lyveden New Building are also among the subjects shown in this part, which concludes the first volume.

* Architecture of the Renaissance in England. By J. ALFRED GOTCH, F.S.A., and W. TALBOT BROWN, A.R.I.B.A. Part 3. London: B. T. Batsford, High Holborn.

THE MARENT GULCH VIADUCT.

A FULLY illustrated paper, by George S. Morison, A.Am.Soc.C.E., appears in the September number of the *Transactions* of that body, descriptive of the Marent Gulch Viaduct in Montana on the main line of the Northern Pacific Railroad. In dimensions and general quality it resembles the Portage Viaduct built in 1875, though it represents ten years' advance in iron viaduct construction. The Marent Gulch structure, like that of Portage, replaced a wooden viaduct in alternate spans of 20 and 50ft., and the iron structure in its divisions is made to agree in part with those of the wooden original. It has five spans, each 116ft. 8in. long, and four towers and four girder spans 30ft. long, making a total length of 796ft. 8in. The total height from top of masonry to top of stringer is 201ft. 9in. The two central towers, which are over 190ft. high, have a slight batter. The width at top of each tower is 23ft. 4in., the same length as the panels in the spans. The strains which they were designed were, 1st, the live load; 2nd, the dead load at top and intermediate points; 3rd, the wind pressure on the top and also at intermediate points; 4th, the traction strain due to the pull of the locomotive on the resistance of brakes applied at the top of tower. With a maximum wind pressure and no live load—an inconceivable condition—a small tension is created at the bottom of windward side of tower. Provision is made at base of tower for expansion and contraction, its length being over 31ft. The superstructure is rigidly bolted to the tops of towers excepting at two points, where expansion steel rollers are provided; the central span expansion is compensated by the spring of the lofty towers. Each tower rests on four points only on masonry piers, and is stiffened by diagonal bracing. The spans consist of deck pin-connected trusses, full details of which and the towers are given. The superstructure was manufactured from the author's designs by the Union Bridge Company at Buffalo. The design is simple, the spans are of five panel lengths of diagonal bracing, and the towers are constructed on the same principle, so that the wind pressure is reduced to a minimum by the openness of the structure.

TYPOLOGICAL MUSEUMS.

AT the last ordinary meeting of the Society of Arts, Lieutenant-General Pitt-Rivers, F.R.S., read a paper on typological museums, as exemplified by the Pitt-Rivers Museum at Oxford, and his provincial museum at Farnham, Dorset. He said that the great desideratum of our day was an educational museum, in which the visitors might instruct themselves. For such a museum originals were not necessary. Casts, reproductions, and models were preferable; the proper specimens could be more easily selected; they were infinitely less costly. Museums of casts did not compete with the research museums, in which originals should be stored. Models occupied less room than originals, and could be more easily arranged to exhibit sequence within a limited space. When dates could not be given (as in the case of most prehistoric objects, and many of the arts of savage nations), recourse must be had to the sequence of type, which he termed "typology." By this he meant the study of the growth, varieties, and developments of the several types. General Pitt-Rivers described the method of arrangement in his museum at Oxford, and explained the character of the museum at Farnham. Acting on the principle that a local museum should contain a good historical series of the prevailing manufactures or industry of the locality, he had come to the conclusion that in a rural district, sparsely inhabitated by scattered agricultural villages, and ten miles from every town and railway-station, the chief features of the collection should be agriculture and peasant handicraft. The museum had been formed on a definite system, and had been a great success. It included pottery, costumes, personal ornaments now in use among peasant in Germany, France, Spain, and other nations carvings, tools, &c.; glass and enamels, model of local excavations, models of ancient monuments, implements of all periods, and many agricultural appliances. Within a short distance of the museum he had formed a recreatio ground, where his private band played on Sunda in the summer. During the past year th recreation ground was attended by 16,839 persons, and the museum by 7,000. Whether or not his more ambitious scheme for a typological museum failed to be realised, at any rate, his provincial museum might be claimed to be a success, judging by the constantly-increasing numbers who visited it, and that, too, in a district which, at first sight, appeared very unpromising.

The frescoes which were discovered a few months ago in the Church of Angioli, at Lugano, have now been freed from their covering of plaster. They are pronounced to be finer and older than the famous "Crucifixion" by Bernardo Luini which decorates the centre of the same church.

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ILLUSTRATIONS.

THE SELECTED DESIGN FOR THE NEW COURTHOUSE, CORK.—LEVEN'S HALL, NEAR KENDAL.—"BUILDING NEWS" CLUB DESIGNS FOR A SMALL CONVALESCENT HOME.—HOUSES AT WESTCOMBE PARK.—HORNSEY-ROAD BATHS.—VILLA AT SNEYD PARK.—BALDACHINO FROM THE CHURCH OF THE HOLY REDEEMER, CLERKENWELL.

Our Illustrations.

CORK COURT HOUSE: SELECTED DESIGN.

We published the report of the referee, Mr. Thomas Drew, R.H.A., in this competition in our issue for Oct. 23rd last, and to-day we illustrate the chosen design, the author of which is Mr. W. H. Hill, F.R.I.B.A., architect, of Cork. It will be remembered that the pediment shown in the centre of the composition shows the existing old part which is to be retained. The assessor, writing of this design, says:—"It is an admirable, straightforward plan, well lighted and inextravagant, evidencing complete familiarity with the procedure of Irish law courts, and the convenient provisions to be made for it. The conditions, save cost, are well observed; the Courts are placed next the side, but quieter, streets. This gives some advantages to the rest of the plan. My estimate is £23,300, or, taking away the dome for comparison with other designs, £22,500." We shall shortly illustrate the second premiated design, by Sir T. N. Deane and Son, architects, of Dublin.

TWO VIEWS OF LEVENS, NEAR KENDAL.

The late Mr. John Dando Sedding's posthumous book* on "Garden Craft," just published by Messrs. Kegan Paul and Co., as might be expected from the pen of such a writer, is readable and entertaining from frontispiece to finis, and there is no more interesting page in the volume than the graceful memoir of the author by the Rev. E. F. Russell, with which its pages open. Among our illustrations to-day, by the courtesy of the publishers, we are enabled to present our readers with a reproduction of two of the original drawings figuring to a smaller scale in the book to which we now draw attention. The subject thus chosen represents the celebrated old yew gardens at the manorial hall called Levens, the historic home of the Howards, with its clipped hollies and yews shaped in fantastic forms resembling birds and bottles, dumb waiters and donjons, ovens and judges' wigs. Beaumont, who designed the Hampton Court Gardens, was responsible for these, and his portrait may still be seen at Levens in the house. The gardener's house continues to be called Beaumont Hall. There is some fine tapestry and much rich oak carving in the mansion at Levens. Samson and Hercules support the chimneypiece in the dining-room, while the "four seasons" and five senses are represented by emblematical figures in the same apartment, which cost, they say, over £3,000. The park is a very beautiful one, and is situated some five miles south of Kendal. With these sketches of Levens gardens before us, with memories of Arley, of Brympton, of Wilton (where the Italian garden is one of the most beautiful in England), Montacute, Rockingham, Penshurst, Blickling, Brickwall, near Northiam, Severn End, Berkeley, and Haddon, we can but pause with the writer and bewail our losses. Wolsey's garden at Hampton Court is now effaced, for the design of the existing grounds dates from William III. Nonsuch, near Epsom Racecourse, in Surrey, is a mere memory, like many more. These gardens, the handiwork of the makers of England, bore, or bear, the marks of heroes. They are the relics of the men and women who made our land both fine and famous in the days of the Tudors—big men who thought and did big things, men of splendid genius and stately notions, past masters of the art of life who would drink life to the lees. "The English garden was not born yesterday—the bombastic child of a landscape gardener's receipt. It epitomises a nation's instincts in garden craft; it is the slow result of old affection for, old wonder at, beauty in forms, colours, tones; old enthusiasm for green turf, wild flower, and forest tree. Take it at its best, it records the matured taste of a people of nature-readers, nature-lovers; it is that which experience has proved to be in most accord with the character and climate of the country, and the genius of the race." In the ideal garden of Bacon, and the attitude of his school towards nature, says Sedding, "there is no trace of mawkish sentimentality of the modern 'landscape gardener,' proud of his discoveries, bustling to show how condescending he can be towards nature, how susceptible to a pastoral melancholy," with "codes of taste" where "the lover's walk may have assignation seats, with proper mottoes, urns to faithful lovers, trophies, garlands, &c., by means of art." "To speak generally of the subject, it is with the art of gardening, as with architecture, literature, and music—there is the Mediæval, the Elizabethan, the Jacobean, the Georgian types. Each and all are English, with a difference, with a declared tendency this way or that, which justifies classification, and illustrates the march of things in the changeful modern world. The various types include the Mediæval garden, the square garden, the knots and figures of Elizabethan times, with their occasional use of coloured earths and gravels; the pleach work and intricate borders of James I.; the painted Dutch statues, as at Ham House; the quaint canals, the winding gravel walks, the formal geometrical figures; the quincunx and *étoile* of William and Mary; later on the smooth, bare, and bald gardens of Kent, the photographic copyism of nature, by Capability Brown, the garden-farm of Shenstone, and other phases of the 'landscape style,' which served for the green grave of the old-fashioned English garden." "Levens is probably the least spoiled of any remaining examples; and this, it seems, was designed by a Frenchman, but worked out under the restraining influences of English taste. Garden craft was then no mere craze of a passing fashion, but a serious item in the round of home life. But even yet some may demur that the interest of the antique garden, as we see it, is due to Nature, and not to art agencies. If a garden owed none of its characteristics to its maker, if it had not expressed the mind of its designer, why the essential differences of the garden of this style and of that? Certain it is that along with the girdle of high edge, or wall, has gone that air of inviting mystery and homely reserve that our forefathers loved, and which comprises one of the pleasantest traits of an old English garden." The writer then discants on "landscape gardening," inaugurated by the aid of "the immortal Brown," and Kent, and "moon-struck Shenstone," the poet. Modern gardens meet with much contempt at his hands, "with their flower-beds shaped as crescents, and kidney-beds like flying bats, or bubbling tadpoles, commingled butterflies, stars, and sausages, monograms, and maggots. Better tonic for the over-wrought brain than the soft glamour of the well-swept lawn, the clipt shrubs, the focussed beauty of dotted specimens, the ordered disorder of wriggling paths and sprawling flower-beds of strange device;—better than these is the stir and enthusiasm of Nature's broad estate, the boulder-tossed moor—where nothing breaks the silence of the hills but the song in the air, the tinkle of the sheep-bells, and the murmur of the moorland bee." Such is the strain with which the writer concludes the whole matter, acknowledging, with a delightful inconsistency, that after all nature alone, untrammelled by art, is the most soul-satisfying. His book is full of fresh fancy, and is furnished with an amplitude of apt quotation ably put together, an artistic mixture made with much originality, like most of his many designs. Throughout the same spirit of delight for the art of the past, its inheritance for the present, and possibilities for the future, marked all his aims; but, with a true rough-shod determination of a keen Radical, he seldom lost to view the object of what is called "the main chance." Vigorous to a degree, and enthusiastic beyond control, he handled his subject with promptitude and capability. This book shows even more than this—a true love of the homely and sublime. The practical outcome of the volume is not so clear, and its pages afford no patterns to crib from, though on many a page are trite sayings worthy of quotation. The drawings which serve as illustrations give plans and views of curious suggestions. The samples we now print are among the most attractive.

"Who loves a garden still keeps his Eden."

* Garden Craft, Old and New. By the late John D. Sedding. London: Kegan Paul, Trench, Trübner, and Co., Ltd., Paternoster House, Charing Cross-road. 1891.

BUILDING NEWS DESIGNING CLUB: A SMALL CONVALESCENT HOME.

(See description on page 894.)

HOUSES AT WESTCOMBE PARK.

These houses have been erected for the freeholder from the designs and under the superintendence of Messrs. Florence and Satchell, of 3, Verulam-buildings, Gray's Inn. They are situate within a few minutes' walk of Westcombe Park station on the South-Eastern Railway, and are intended to supply a demand in this rising neighbourhood for family residences, which shall be of attractive appearance and of roomy proportions, and shall also, by economy in planning and general arrangement, be within the reach of occupiers possessing moderate incomes. They are built of red brick with tile hanging, and have Broseley tile roofs. Internally they are fitted with all needful requirements. The builders are Messrs. Balaam Bros., of Shenton-street, Old Kent-road.

PUBLIC BATHS AND WASHHOUSES, HORNSEY ROAD, N.

(These sketches are described on page 919.)

DETACHED VILLA, SNEYD PARK, BRISTOL.

The arrangement and accommodation of the principal floors of this house are clearly shown by the small-scale plans; in addition to which are cellars in the basment, and four bedroom sand linen-closet on the second floor. The site is at the junction of two roads facing the well known downs, the materials being native stone quarried on the site with Bath-stone dressings. The builders are Messrs. Walters and Son, and our illustration is reproduced from a drawing by the architect, Mr. H. Dare Bryan, of 38, College-green, Bristol.

BALDACHINO FROM THE CHURCH OF THE HOLY REDEEMER, CLERKENWELL.

The Baldachino over the altar at the above church, like the building itself, is thoroughly Classical, and, therefore, rather foreign to the genius of the late J. D. Sedding, who was the architect. Although interesting as emanating from him, it lacks that intense originality and "go" which usually characterised his work. Whether the return, as in this instance, to the Italian style, so largely adopted by the Romish Church, is likely to gain ground remains to be seen. We are inclined to doubt that it will. It seems, however, that the Gothic Revival, associated with the Ecclesiological movement, has not brought forth all that was expected of it. Perhaps it is that all architectural style, after once it has reached its zenith at the hands of men of real genius, is doomed to suffer degradation and ultimate decay at the hands of a host of mere copyists. These, possessing no taste or feeling to guide them, vulgarise a style otherwise beautiful by reproducing it in ignoble forms, and become mere manufacturers of a spiritless art. Our sketch is made from a photograph by Mr. Knights, of Brixton.

The schoolboard for Stoke-on-Trent have adopted plans prepared by their architect, Mr. E. C. Scrivener, for the enlargement of the Fenton, Bagnall, and Harpfield schools.

The new wing of the High Wycombe and Beaconsfield Memorial Cottage Hospital was opened on Saturday by Mr. Coningsby Disraeli. The wing has been erected with the surplus money of the fund raised for the purpose of a national memorial to the late Earl.

THE BUILDING NEWS DIRECTORY.

At the request of many advertisers it has been determined to commence with 1892 the weekly publication of a BUILDING NEWS DIRECTORY, to which Architects may easily refer when in search of the makers and vendors of Architectural and Building Specialities.

The large Advertiser is, of course, to a considerable extent independent of such help. By his judicious iteration of the merits of his specialities he effectually impresses the mind of the constant reader with his claims to attention. But he will find it to his interest to avail himself of our new help to publicity; and besides, there are hundreds of Manufacturers who never advertise in the ordinary way, or who, if they do so, only advertise one or a few of the articles they make and supply, and who yet essentially need *constantly to remind Architects of their existence.*

It may be urged that the Trade Directories and Price Books to a certain degree supply this want; but when it is remembered how limited, comparatively, is their circulation, and how swamped the comparatively few that are wanted are for the most part amongst hundreds of thousands of other names and addresses in which Architects have no interest, and among which they are seldom likely to search for what they require, it will be seen at once how advantageous in a Journal like THE BUILDING NEWS will be the introduction of the feature we contemplate.

We propose, therefore, to devote space *in the body of the paper, immediately preceding and following the Illustrations*, and not among advertisements, or on the inside pages of the outer sheet, to a carefully-arranged *Directory of Makers and Vendors of Architectural Specialities and Builders' Appliances*, under generic and suggestive heads which will naturally suggest themselves to Architects and others in search of Advertisers' addresses.

It will be evident, of course, that many Manufacturers will desire to have more than one entry in the list, because they supply more than one speciality. For the majority possibly one entry will be ample, and that we undertake to make and to repeat weekly in every edition for the sum of ONE POUND PER ANNUM, payable strictly in advance, and expiring on the 31st of December in each year. We cannot undertake to charge for parts of years in connection with this matter, so that entries should at once be forwarded, accompanied by the necessary subscription, that they may appear in our NEW YEAR'S DOUBLE NUMBER, on January 1, and throughout the whole of 1892.

Clients who may desire to have more than one entry under different heads can do so to any extent they please by payment of *One Pound each* for every additional entry.

All payments *must be made in advance*, as this feature is not introduced as a remunerative one to the Publisher in itself, and the small charge made will barely defray expenses, and will not allow of booking. Name and address must not exceed one line.

The following firms have already entered their names up to Dec. 18. We have more in hand, but cannot guarantee to include any that do not reach us *at once*—at any rate, in our New Year's Number:—

ARCHITECTURAL DESIGNERS—
Finsbury Tracing and Drawing Office, 113, Pavement, E.C.

ARCHITECTURAL PHOTOGRAPHERS—
Bedford, Lemere, and Co., 147, Strand, London, W.C.

ARCHITECTURAL TERRACOTTA—
Gibbs and Canning, Ltd., Tamworth.

ARTISTS IN STAINED GLASS—
Bourne Swain, 61, King Edward-road, Birmingham.

ASPHALTE—
Avelines Sicilian Asphalte. Joseph Bernays, 96, Newgate-street, E.C.

BATH STONE—
Bath Stone Firms, Limited, Bath.

BOOKS—
B. T. Batsford (Professional), 52, High Holborn, London, W.C.

BRICKS—
Accrington Brick and Tile Co. (Facing Bricks, Plastic and Semi-Plastic), 8, St. James-street, Accrington.

Gibbs and Canning, Ltd. (White Glazed), Tamworth.

Heather Brick and Terracotta Co, near Ashby-de-la-Zouch

BRICK AND TILE MACHINERY—
Clayton Howlett Co., Woodfield-road, Harrow-road, W.

BUILDING COMPOSITION—
White, W., Great Western Works, Abergavenny.

CEMENT MANUFACTURERS—
Rugby Portland Cement Co., Rugby.

CEILING DECORATIONS—
Heaton, J. Aldam, 26, Charlotte-street, Bedford-square, W.C.

CONCRETE—
Fambrini and Daniels, Excelsior Art Concrete Works, Lincoln.

CURTAIN BLINDS—
Heaton, J. Aldam, 26, Charlotte-street, Bedford-square, W.C.

ELECTRIC BELLS—
Gray, J. W., and Son, 9, Gracechurch-street, E.C.

FANLIGHT OPENERS—
Osborn, David, High-street, Berkhamsted.

FIREPROOF FLOORS—
Lindsay Neal, W. H., and Co., 15, North Wharf, Paddington.

FIREWOOD SPLITTING & BUNDLING MACHINERY—
Glover, M., and Co., Patentees and Saw Mill Engineers, Leeds.

GRANITE MERCHANTS—
Webb, Percy C., 41, Eastcheap, London, E.C.

HEATING APPARATUS—
Boyd, Jas, and Sons, Paisley.

Grundy, J, 30, Duncan-terrace, City-road, London, N.

HORTICULTURAL BUILDINGS—
Boyd, Jas., and Sons, Paisley.

Gloucester Railway and Carriage and Wagon Co, Gloucester.

HYDRAULIC RAMS—
Blake, John, Oxford-street Works, Accrington, Lancashire.

JOINERY—
Elliott, Saml., Albert Joinery Mills, Newbury.

Gloucester Railway and Carriage and Wagon Co., Gloucester.

LIGHTNING CONDUCTORS—
Gray, J. W., and Son, 9, Gracechurch-street, E.C.

LIME BURNERS—
Rugby Portland Cement Co., Rugby.

PAPERHANGINGS—
Land, J. and H., 93, Cannon-street, E.C.

PAVEMENT ROLLERS—
Gilchrist, Alex., 25, Eglinton-street, Glasgow.

PERSPECTIVES—
Finsbury Tracing and Drawing Office, 113, Pavement, E.C.

PHOTO-LITHOGRAPHY
Whiteman and Bass, 236, High Holborn, W.C.

PIPES—
Gibbs and Canning, Ltd. (Glazed Stoneware), Tamworth.

QUANTITY LITHOGRAPHERS—
Pettitt, T., and Co., 22 and 23, Frith-street, and 50, Old Compton-street, London, W.

RAIN WATER SEPARATORS—
Roberts, C. G., Haslemere, Surrey.

SANITARY APPLIANCES—
Gibbs and Canning, Ltd., Tamworth.

SINKS—
Gibbs and Canning, Ltd. (Cane-colour Glazed), Tamworth.

SPEAKING TUBES—
Gray, J. W., and Son, 9, Gracechurch-street, E.C.

SPECIAL ENGINEERING BRICKS—
Accrington Brick and Tile Co, 8, St. James-street, Accrington.

STAINED-GLASS—
Adam, Stephen, and Co. (formerly Adam and Small), Glasgow.

Camm, T. W, High-street, Smethwick, Birmingham.

STONE WORKING MACHINERY—
Powis Bale, M., and Co., Appold-street, London, E.C.

TELEPHONES—
Gray, J. W., and Son, 9, Gracechurch-street, E.C.

TERRA-COTTA—
Accrington Brick and Tile Co. (and Ornamental Brickwork), 8, St. James-street, Accrington.

Pulham, J., and Son, 50, Finsbury-square, and Broxbourne, Herts.

Thompson, Jabez, Northwich, Cheshire.

TILES—
Carter and Co. (Encaustic, Mosaic, and Faience), Poole, Dorset.

VENTILATION—
Buchan, W. P., R.P., S.E, 21, Renfrew-street, Glasgow.

Gibbs, John, and Son, 27, South John-street, Liverpool.

Howorth, Jas, and Co, Victoria Works, Farnworth, Bolton.

WOOD BLOCK FLOORING—
Gregory, T., and Co., Station Works, Clapham Junction, S.W

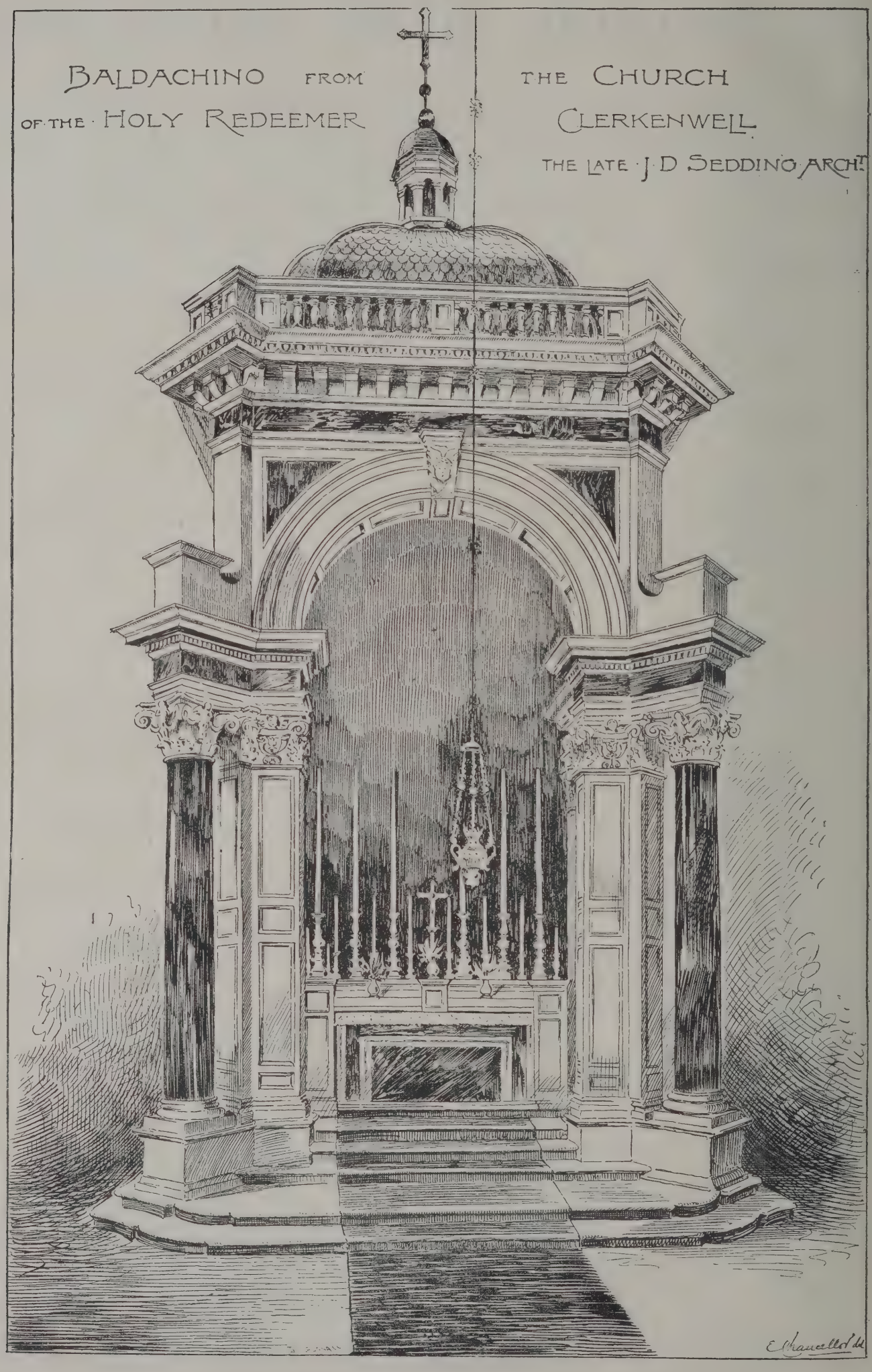
Lowe, Roger L., Worsley-road, Farnworth, Bolton.

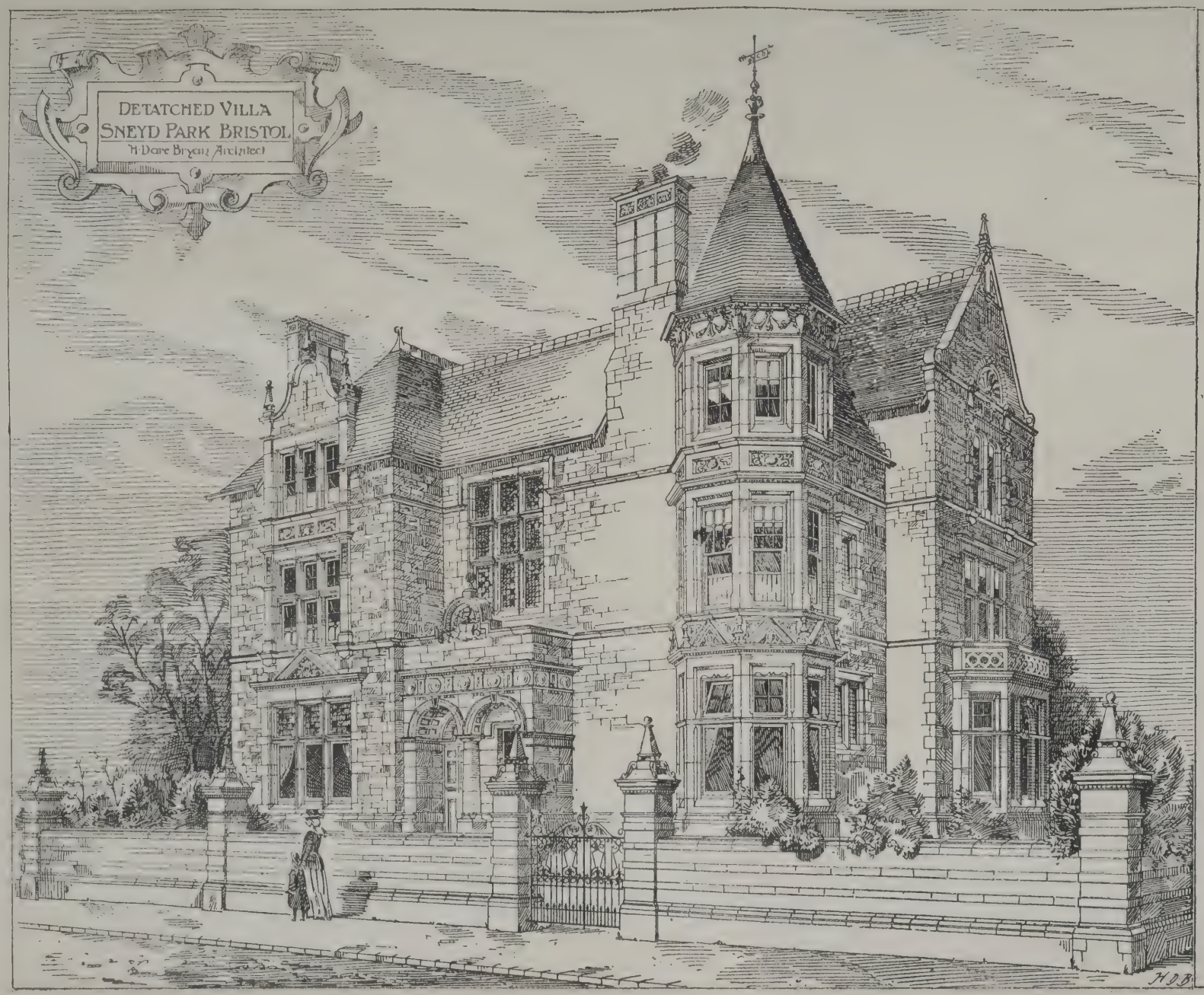
WOOD-WORKING MACHINERY—
Reynolds, F. W., and Co., Acorn Works, Edward-street, Blackfriars-road, S.E.

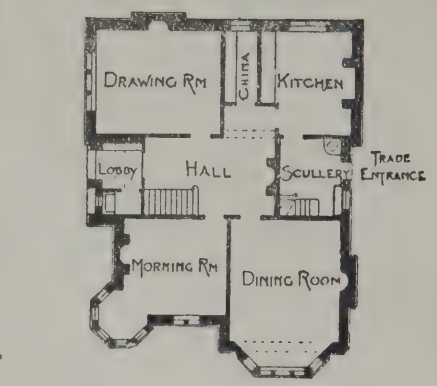
WROUGHT IRON GATES, GRILLES, &c.—
Worrall (Specialist), Byrom-street, Liverpool.

BALDACHINO FROM THE CHURCH OF THE HOLY REDEEMER CLERKENWELL

THE LATE J. D SEDDING ARCHT







GROUND PLAN



FIRST FLOOR PLAN

WAYSIDE NOTES.

SOME ingenious gentleman has conceived a plan whereby not only may the murky waters of the Thames become a thing of the past, but the atmosphere of London be transformed from its present smoky condition to that of sunny Southern countries. I saw his communication in the last issue of this journal, and the hasty perusal then made has left an impression that these much-desired reforms are to be brought about by taking advantage of the fact that the sea-level on the western coasts of England is considerably higher than that on the south-eastern coasts. A canal was to be cut from some western point towards some portion of the upper reaches of the river, and then, presto! the water flows in one continuous stream, tides are done away with, a continuous current of pure water flows along the river's bed, thereby creating a continual draught through the City, and drawing away smoke and fogs, while the regurgitation of sewage in the Lower Thames is entirely prevented. What a glorious prospect! It may be urged that the tidal action of the river would prevent this scheme being carried into effect, by causing the flooding of one-half of London; but I think our ingenious friend has met this difficulty by proposing to construct another canal or water-way from below the City, through Kent, to the South Coast. Then I suppose the tidal river below London would be dammed, and not allowed to affect the waters above. It will, I think, be generally admitted that this suggestion is ingenious and possibly original, even if its practicability is doubted.

My mind reverted to this proposal, not because of any great merit perceived in the scheme, but because I would say, with emphasis, that if someone would construct forty such waterways and only do away with the fog, one would bless him and his posterity. When one has had to abandon a S.E.R. train on the outskirts of London as though it were a derelict at sea, and sneak through the Thames tunnel to get the better of the fog, and arrive by hook or crook at one's business, even if hours behind time, and then suddenly awake to the fact that the "B. N." appears earlier this week on account of the festive season—the said earlier appearance necessitating the raking together of notes some twenty-four hours before time as ordinarily—when I repeat, one has one's fill of fog up to the eyes, and has these experiences, and reflects that the topic of "A—a P. or an A. ?" is dead and buried, and no possible service any more as a peg for paragraphs, and that even to lean upon the "craftsman architect" is to lean upon a reed, that individual having proved to be a mere shadowy phantom—a bogey at the best—at such a time one thinks lovingly of would-be knights-errant against the fog-demon. At such a time, too, one scans desperately the morning papers to see if there is anything "moving,"—as the travellers say—in the architectural world,—whether an order in council has been made that architects shall receive 30 per cent. commission in place of five,—whether, in view of the aforesaid festive season, the Queen is about to confer knighthood upon all the signatories of the *Times* Memorial,—whether the Institute Council has unanimously resolved to support the Architects' Registration Bill, and by acclamation decided to offer free Fellowship to all members of the Society of Architects.

I look in vain. No one comes forward to agitate for the incarceration of all architects showing signs of mental derangement, *in re* arts and crafts, *et hoc*, &c., in lunatic asylumns; the grievances of competing architects remain unredressed by the Crown, and assistants still work overtime, and do not receive thirty shillings an hour for so doing. There is nothing new. I have had a mind to give it up and go a-skating on the plea of studying the ethics of curves of contrary flexure, acquiring a knowledge of the laws of impact, and investigating the stability and balance of sliding bodies. When one has the bad luck to suggest that competing architects are slack on the very day that a block of four competition advertisements appears, enthusiasm for architectural topic-making receives a damper, and the singing of Christmas carols in Conduit-street seems a safer occupation. My sheet-anchor of hope, the *Times*, even fails me this week, and I only see that Sir J. C. Robinson is not to be put down as to the Totnes Grammar-school, for all the town-clerks in Devonshire, but gamely replies that even if the old building has been altered and repaired in various stages of the world's history, it yet remains of passing interest, with its "quaint old doorway, mullioned windows with their diamond-paned casements and curious bell-turret on the roof," and forms "together with the Guildhall, which it adjoins, a group of ancient buildings of infinite picturesqueness and charm." The which readers, possibly, knew already, and may even be aware that the Society of Antiquaries have petitioned the Mayor of Totnes to interfere in behalf of the old building.

Here I am brought to anchor again, and fall to thinking egotistically that my pet job is now stopped by the frost, and feel sympathy with all others in a similar plight, and especially to regret that the bricklayers did not have open weather till at least Christmas Day, and thus be able to have more ninepences to lay out on their Christmas dinner. Talking to a friend a night or two ago, he remarked on the advisability of *well projecting* the coverings placed on incomplete brickwork, as frosts seemed to act in a *downward* direction, and the projection of the covering protected, to a great degree, the work below. In this view I concurred, pointing out as conclusive evidence of the correctness of his theory that, inasmuch as "frosts" at theatres originated in the gallery, they might therefore be said to descend. There was, perhaps, more science in his own argument, that the hoar-frost on the boards about a building stands in vertical needles, like iron filings clinging to a magnet, seeming to indicate some vertical magnetic or other influence. But now I reflect upon the matter, I rather fancy that the downward action is a long-recognised attribute of frost by scientists.

It was only the other day that a foreman was telling me a seasonable story about brickwork in frosty weather. In order to save some legal injunction, or other complication, a wall had to be built up in a few hours. There was a mighty frost, and the bricklayers worked all night. Fires were burning on the scaffold, and the cement was mixed in thimbles, or something smaller. *It froze on the trowels.* Nevertheless, the great object was accomplished. As day dawned, and a rosy hue outlined the chimneys and cowls of the neighbouring back addition, the work rapidly drew towards completion. Morning broke on "something accomplished, something done." *The wall was built.*

I wish all a Merry Christmas, and such innocent enjoyments as become the dignity of *the new architect.* Skating I confidently recommend as a means of striking such novel and delicate curves as shall be suited to the new architecture. Seriously, I wish all a happy holiday, such as architects who do architects' work with all its anxieties, continuous labours, and inevitable disappointments richly deserve. To all my readers I extend the heartiest wishes for Christmas wherever they may find themselves—by river, mead, or town, at home or abroad; and let them imagine I send them a card, the centre feature of which is an old English church, with its grey tower seeming, as all such do, to wear a glad-some face, as though proclaiming an everlasting peace on earth and goodwill towards men.

GOTH.

Mr. T. R. Wilkinson, of Manchester, has presented to the National Portrait Gallery in London a portrait of the eminent sculptor, John Flaxman, R.A., painted at Rome by Guy Head in 1792. He has also given to the National Collection, South Kensington Museum, a representative picture by William Bradley, "Early Fruit." Both pictures were in the collection of the late Mr. Robert Crozier, president of the Manchester Academy of Fine Arts, dispersed by auction at Christie's on Wednesday week.

A pulpit has been placed in the Church of St. John the Evangelist, Stand, near Manchester, as a memorial of the late vicar. The pulpit is of red-veined alabaster, with a base of Hopton Wood stone. Around the pulpit are three niches with green marble shafts. Two of the niches contain tracery, and the centre one holds the figure of St. John, accompanied by his eagle, carved in white alabaster. The work has been carried out by Messrs. Earp and Hobbs, sculptors, from the drawings and under the direction of Mr. J. Medland Taylor, the architect of the church.

PUBLIC BATHS AND WASH-HOUSES, HORNSEY ROAD, N.

WE publish to-day the perspective view and a block plan of the design selected by the commissioners in their recent competition, the buildings for which are now in course of erection. The author is Mr. A. Hessell Tiltman, F.R.I.B.A., of 70, Torrington-square, London, who, it will be remembered, defeated his fellow competitors in the competition by submitting two designs, which were awarded by the arbitrator respectively first and second premiums. The following particulars have been furnished:—The accommodation consists of three swimming-baths, the water surfaces of which are—First-class, men's, 132ft. by 40ft., with large galleries; the second-class, men's, 100ft. by 35ft.; and the women's, 75ft. by 25ft. Right and left of the first-class swimming-bath (which occupies the central part of the building) are the slipper-baths, 105 in number, divided as follows: Men's—18 first class, 54 second class; Women's—10 first class, 23 second class. A committee-room for the commissioners, and the requisite accommodation by way of waiting-rooms, pay-boxes, &c., have been provided. This part of the building has been specially arranged so that the first-class swimming-bath may be adapted, in the winter months, for use as a place of entertainment. On the left-hand side of the quadrangle will be found the public laundry, which comprises a public washhouse, accommodating fifty washers, with a like number of drying horses; ironing-room and the requisite waiting and cloak-rooms. The boiler-house, together with the establishment laundry, are provided for in a half-basement under the public laundry. The view published to-day shows only the central block in the main front facing the Hornsey-road, through three arches of which access is obtained to the quadrangle shown upon the block plan, and from which all parts of the baths and washhouse proper are entered. The upper portion of the central block is appropriated to the use of the resident superintendent, and also of a resident engineer. The shops and houses shown right and left of the central block are not included in the scheme of the commissioners' own operations. The portion of the work now in hand is being carried out by Messrs. Macfarlane Bros., of Hornsey-road, N., at a cost of £27,481.

SCHOOLS OF ART.

LONDON SCIENCE AND ART SCHOOLS.—A largely-attended meeting of the sppporters and teachers of London science and art schools and classes was held on Saturday at the Charterhouse School, Goswell-road, to determine the terms of memorials to the next London County Council, to the Charity Commissioners, and to the City Guilds, praying for "the endowment of technical education in the metropolitan science and art schools and classes." Sir A. K. Rollitt, LL.D., M.P., who presided, said that the very basis of technical education was primary education, and the immediate foundation of all technical education worthy of the name was science and art teaching. Having attended many meetings of science and art schools in London and the provinces, he was convinced that, if there were one department of State which had done better service than almost any other, it was the Science and Art Department, under which they worked. The memorial to be presented to the next London County Council, the terms of which were approved after some slight revision, laid stress upon the fact that during the past 50 years 500,000 adult students had been instructed in the art and science schools and classes in London—organisations which were now threatened with impoverishment unless the County Council came to their aid with grants from the revenue which they received under the Local Taxation Act, and which were expressly intended to maintain and advance technical education. While that Act remained in force, the Science and Art Directory had determined to suspend from the 31st inst. all grants for fittings, apparatus, and examples; and from May next all payments for the second-class in the elementary stage of each science subject would cease. Other memorials to the Charity Commissioners and the City Guilds soliciting monetary assistance were likewise adopted. A deputation was appointed to present the petition to the new County Council.

We understand that the floors at Sandringham, recently destroyed by fire, have been reconstructed on Messrs. Homan and Rodgers' patent system.

PRICES.—XXVII.*

(All Prices Include Profit).

JOINER (*continued*).

HARDWOOD DOORS: four panels, pitch-pine—

		£	s.	d.
1¼in. square framed	per ft. sup.	0	0	11½
Ditto ditto bead butt	ditto	0	1	0½
Ditto ditto ditto flush	ditto	0	1	1½
Ditto ditto moulded one side	ditto	0	1	0½
Ditto ditto ditto two sides	ditto	0	1	1½
Ditto ditto bolection on one side, and moulded the other	ditto	0	1	2½
Ditto ditto bead butt and moulded	ditto	0	1	1½
Ditto ditto ditto flush ditto	ditto	0	1	1½
Ditto ditto stop-chamfered one side with plain stops	ditto	0	1	4½
Ditto ditto ditto two sides	ditto	0	1	9½
1½in. square framed	ditto	0	1	0
Ditto ditto bead butt	ditto	0	1	1
Ditto ditto ditto flush	ditto	0	1	2
Ditto ditto moulded one side	ditto	0	1	1
Ditto ditto ditto two sides	ditto	0	1	2
Ditto ditto ditto but bolection one side	ditto	0	1	3
Ditto ditto stop-chamfered one side	ditto	0	1	5
Ditto ditto ditto two sides	ditto	0	1	10
Ditto ditto raised panels one side	ditto	0	1	8
Ditto ditto top panels cut for glass, not including loose beads	ditto	0	1	1
Ditto ditto top panel sashed	ditto	0	1	5
Ditto ditto ditto small squares	ditto	0	1	7
Add if folding	ditto	0	0	1

(NOTE.—In no case does hung folding include rebates or beads or rounded or hollow edges.)

2in. square framed	per ft. sup.	0	1	1
Ditto ditto bead butt	ditto	0	1	2
Ditto ditto ditto flush	ditto	0	1	3
Ditto ditto moulded one side	ditto	0	1	2
Ditto ditto ditto two sides	ditto	0	1	3
Ditto ditto ditto but bolection on one side	ditto	0	1	4
Ditto ditto stop-chamfered one side	ditto	0	1	6
Ditto ditto ditto two sides	ditto	0	1	11
Ditto ditto raised panels one side	ditto	0	1	8
Ditto ditto ditto two sides	ditto	0	2	3
Ditto ditto top panels cut for glass, loose beads not included	ditto	0	1	2
Ditto ditto top panels sashed	ditto	0	1	6
Ditto ditto in small squares	ditto	0	1	8
Hung folding extra	ditto	0	0	1
2½in. square framed	ditto	0	1	3
Ditto ditto bead butt	ditto	0	1	4½
Ditto ditto ditto flush	ditto	0	1	5
Ditto ditto moulded one side	ditto	0	1	4
Ditto ditto ditto two sides	ditto	0	1	2
Ditto ditto ditto one side bolection	ditto	0	1	6
Ditto ditto stop-chamfered one side, and plain stops	ditto	0	1	8
Ditto ditto ditto two sides	ditto	0	1	11
Ditto ditto raised panels one side	ditto	0	1	10
Ditto ditto ditto two sides	ditto	0	2	5
Ditto ditto top panels cut for glass, not including loose beads	ditto	0	1	4
Ditto ditto top panel sashed	ditto	0	1	8
Ditto ditto small squares	ditto	0	1	10

HARDWOOD DOORS: Honduras mahogany, dwarf—

1in. square framed	per ft. sup.	0	1	10
Ditto ditto bead and butt	ditto	0	2	0
Ditto ditto ditto flush	ditto	0	2	1
Ditto ditto moulded one side	ditto	0	2	1
Ditto ditto ditto two sides	ditto	0	2	4
Ditto ditto stop-chamfered one side and plain stops	ditto	0	2	3
Ditto ditto ditto two sides	ditto	0	2	8
Ditto ditto two panels, square framed	ditto	0	2	0
Ditto ditto bead butt	ditto	0	2	2
Ditto ditto ditto flush	ditto	0	2	3
Ditto ditto moulded one side	ditto	0	2	3
Ditto ditto ditto two sides	ditto	0	2	6
Ditto ditto stop-chamfered one side including plain stops	ditto	0	2	5
Ditto ditto ditto two sides	ditto	0	2	10
1¼in. one panel, square framed	ditto	0	2	0
Ditto ditto bead butt	ditto	0	2	2
Ditto ditto ditto flush	ditto	0	2	3
Ditto ditto moulded one side	ditto	0	2	3
Ditto ditto ditto two sides	ditto	0	2	6
Ditto ditto stop-chamfered one side including plain stops	ditto	0	2	5
Ditto ditto ditto two sides	ditto	0	2	10
Ditto ditto two panels, square framed	ditto	0	2	2
Ditto ditto bead butt	ditto	0	2	4
Ditto ditto ditto flush	ditto	0	2	5
Ditto ditto moulded one side	ditto	0	2	5
Ditto ditto ditto two sides	ditto	0	2	8
Ditto ditto stop chamfered one side including plain stops	ditto	0	2	7
Ditto ditto ditto two sides	ditto	0	3	0
Ditto ditto raised panels one side	ditto	0	2	10
1½in. one panel, square framed	ditto	0	2	4
Ditto ditto bead butt	ditto	0	2	6
Ditto ditto ditto flush	ditto	0	2	8
Ditto ditto moulded one side	ditto	0	2	7
Ditto ditto ditto two sides	ditto	0	2	10
Ditto ditto stop-chamfered one side including plain stops	ditto	0	2	9
Ditto ditto ditto two sides ditto	ditto	0	3	2
Ditto ditto raised panels one side	ditto	0	3	0
Ditto ditto two panels, square framed	ditto	0	2	6
Ditto ditto bead butt	ditto	0	2	8
Ditto ditto ditto flush	ditto	0	2	10
Ditto ditto moulded one side	ditto	0	2	10
Ditto ditto ditto two sides	ditto	0	3	2
Ditto ditto stop-chamfered one side including plain stops	ditto	0	2	11
Ditto ditto ditto two side	ditto	0	3	4
Ditto ditto raised panels one side	ditto	0	3	6
2in. one panel, square framed	ditto	0	2	9
Ditto ditto bead butt	ditto	0	2	11
Ditto ditto ditto flush	ditto	0	3	1

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		£	s.	d.
2in. one panel, moulded one side	per ft. sup.	0	3	0
Ditto ditto ditto two sides	ditto	0	3	3
Ditto ditto stop-chamfered one side including plain stops	ditto	0	3	2
Ditto ditto ditto two sides	ditto	0	3	7
Ditto ditto raised panels one side	ditto	0	3	5
Ditto two panels, square framed	ditto	0	2	11
Ditto ditto bead butt	ditto	0	3	1
Ditto ditto ditto flush	ditto	0	3	3
Ditto ditto moulded one side	ditto	0	3	3
Ditto ditto ditto two sides	ditto	0	3	7
Ditto ditto stop-chamfered one side including plain stops	ditto	0	3	5
Ditto ditto ditto two sides	ditto	0	3	11
Ditto ditto raised panels	ditto	0	3	9
Ditto ditto ditto two sides	ditto	0	4	6

HARDWOOD DOORS: ordinary sizes; Honduras mahogany—

1in. two panel, square framed	per ft. sup.	0	1	10
Ditto ditto bead butt	ditto	0	2	0
Ditto ditto ditto flush	ditto	0	2	1
Ditto ditto moulded one side	ditto	0	2	1
Ditto ditto ditto two sides	ditto	0	2	4
Ditto ditto ditto and one side bolection moulded	ditto	0	2	6
Ditto ditto stop-chamfered one side and plain stops	ditto	0	2	3
Ditto ditto ditto two sides	ditto	0	2	8
1¼in. ditto square framed	ditto	0	2	0
Ditto ditto bead butt	ditto	0	2	2
Ditto ditto ditto flush	ditto	0	2	3
Ditto ditto moulded one side	ditto	0	2	3
Ditto ditto ditto two sides	ditto	0	2	6
Ditto ditto ditto and bolection moulded on one side	ditto	0	2	8
Ditto ditto stop-chamfered one side and plain stops	ditto	0	2	7
Ditto ditto ditto two sides	ditto	0	3	0
1¼in. ditto square framed	ditto	0	2	2
Ditto ditto bead butt	ditto	0	2	4
Ditto ditto ditto flush	ditto	0	2	5
Ditto ditto moulded one side	ditto	0	2	5
Ditto ditto ditto two sides	ditto	0	2	8
Ditto ditto ditto and bolection on the other	ditto	0	2	10
Ditto ditto stop-chamfered one side				
Ditto ditto ditto two sides	ditto	0	2	7
Ditto ditto raised panels one side	ditto	0	2	10
Ditto ditto top panel cut for glass, not including loose beads	ditto	0	2	4
Ditto ditto top panel sashed	ditto	0	2	10
Ditto ditto ditto in small squares	ditto	0	3	2
Add if hung folding to any of the above	ditto	0	0	1½
2in. ditto square framed	ditto	0	2	6
Ditto ditto bead butt	ditto	0	2	8
Ditto ditto ditto flush	ditto	0	2	10
Ditto ditto moulded one side	ditto	0	2	9
Ditto ditto ditto two sides	ditto	0	3	0
Ditto ditto ditto one side bolection	ditto	0	3	2
Ditto ditto stop-chamfered one side	ditto	0	2	11
Ditto ditto ditto two sides	ditto	0	3	4
Ditto ditto raised panels one side	ditto	0	3	2
Ditto ditto ditto two sides	ditto	0	3	10
Ditto ditto top panels cut for glass, not including loose beads	ditto	0	2	8
Ditto ditto top panels sashed	ditto	0	3	9
Ditto ditto ditto in small squares	ditto	0	3	6
1¼in. four-panel, square framed	ditto	0	2	0
Ditto ditto bead butt	ditto	0	2	2
Ditto ditto ditto flush	ditto	0	2	4
Ditto ditto moulded one side	ditto	0	2	3
Ditto ditto ditto two sides	ditto	0	2	6
Ditto ditto bolection on one side	ditto	0	2	8
Ditto ditto bead butt and moulded	ditto	0	2	5
Ditto ditto ditto flush and ditto	ditto	0	2	7
Ditto ditto stop-chamfered one side and plain stops	ditto	0	2	5
Ditto ditto ditto two sides	ditto	0	2	10
1¼in. ditto square framed	ditto	0	2	6
Ditto ditto bead butt	ditto	0	2	8
Ditto ditto ditto flush	ditto	0	2	10
Ditto ditto moulded one side	ditto	0	2	9
Ditto ditto ditto two sides	ditto	0	3	0
Ditto ditto ditto and bolection on one side	ditto	0	3	2
Ditto ditto stop-chamfered one side and plain stops	ditto	0	2	11
Ditto ditto ditto two sides	ditto	0	3	4
Ditto ditto raised panels one side	ditto	0	3	2
Ditto ditto top panels cut for glass, not including loose beads	ditto	0	2	8
Ditto ditto top panels sashed	ditto	0	3	0
Ditto ditto ditto small squares	ditto	0	3	4
Add if folding	ditto	0	0	1½
2in. ditto square framed	ditto	0	3	0
Ditto ditto bead butt	ditto	0	3	2
Ditto ditto ditto flush	ditto	0	3	4
Ditto ditto moulded one side	ditto	0	3	3
Ditto ditto ditto two sides	ditto	0	3	6
Ditto ditto ditto and bolection on one side	ditto	0	3	8
Ditto ditto stop-chamfered one side and plain stops	ditto	0	3	5
Ditto ditto ditto two sides	ditto	0	3	10
Ditto ditto raised panels one side	ditto	0	3	8
Ditto ditto ditto two sides	ditto	0	4	4
Ditto ditto top panels cut for glass, not including loose beads	ditto	0	3	2
Ditto ditto top panels sashed	ditto	0	3	8
Ditto ditto ditto small squares	ditto	0	4	2
Hung folding extra	ditto	0	0	1½
2½in. ditto square framed	ditto	0	3	6
Ditto ditto bead butt	ditto	0	3	9
Ditto ditto ditto flush	ditto	0	3	11
Ditto ditto moulded one side	ditto	0	3	10
Ditto ditto ditto two sides	ditto	0	4	2
Ditto ditto ditto and one side bolection moulded	ditto	0	4	5
Ditto ditto stop-chamfered one side and plain stops	ditto	0	4	0
Ditto ditto ditto two sides	ditto	0	4	6
Ditto ditto raised panels one side	ditto	0	4	3
Ditto ditto ditto two sides	ditto	0	5	0

		£	s.	d.
2½in. top panels cut for glass, not including loose beads	per ft. sup.	0	3	9
Ditto ditto top panels sashed	ditto	0	4	3
Ditto ditto ditto in small squares	ditto	0	4	9
Hung folding extra	ditto	0	0	2
1½in. six panel, square framed	ditto	0	2	9
Ditto ditto bead butt	ditto	0	3	0
Ditto ditto ditto flush	ditto	0	3	2
Ditto ditto moulded one side	ditto	0	3	1
Ditto ditto ditto two sides	ditto	0	3	5
Ditto ditto ditto and one side bolection moulded	ditto	0	3	8
Ditto ditto stop-chamfered one side and plain stops	ditto	0	3	3
Ditto ditto ditto two sides	ditto	0	3	9
Ditto ditto raised panels one side	ditto	0	3	6
Ditto ditto ditto two sides	ditto	0	4	3
Ditto ditto top panels cut for glass, not including loose beads	ditto	0	3	0
Ditto ditto ditto sashed	ditto	0	3	6
Ditto ditto ditto small squares	ditto	0	4	0
Ditto ditto hung folding add	ditto	0	0	1½
2in. ditto, square framed	ditto	0	3	3
Ditto ditto bead butt and square	ditto	0	3	6
Ditto ditto ditto flush	ditto	0	3	8
Ditto ditto moulded one side	ditto	0	3	7
Ditto ditto ditto two sides	ditto	0	3	11
Ditto ditto butt and moulded	ditto	0	3	10
Ditto ditto ditto flush	ditto	0	4	0
Ditto ditto moulded one side and bolection the other	ditto	0	4	2
Ditto ditto stop-chamfered one side and plain stops	ditto	0	3	9
Ditto ditto ditto two sides	ditto	0	4	3
Ditto ditto top panels cut for glass, not including loose beads	ditto	0	3	6
Ditto ditto ditto sashed	ditto	0	4	0
Ditto ditto ditto in small squares	ditto	0	4	6
Ditto ditto raised panels one side	ditto	0	4	0
Ditto ditto ditto two sides	ditto	0	4	9
Ditto ditto hung folding	ditto	0	0	2
2½in. ditto, square framed	ditto	0	3	9
Ditto ditto bead butt and square	ditto	0	4	0
Ditto ditto ditto flush	ditto	0	4	3
Ditto ditto moulded one side	ditto	0	4	4
Ditto ditto ditto two sides	ditto	0	4	8
Ditto ditto bead butt and moulded.	ditto	0	4	4
Ditto ditto ditto flush	ditto	0	4	7
Ditto ditto moulded one side and bolection the other	ditto	0	4	8
Ditto ditto stop-chamfered one side and plain stops	ditto	0	4	3
Ditto ditto ditto two sides	ditto	0	4	9
Ditto ditto top panels cut for glass, not including loose beads	ditto	0	4	0
Ditto ditto top panels sashed	ditto	0	4	6
Ditto ditto ditto in small squares	ditto	0	5	0
Ditto ditto raised panels one side	ditto	0	4	6
Ditto ditto ditto two sides	ditto	0	5	3
Ditto ditto hung folding extra	ditto	0	0	2

HARDWOOD DOORS: Spanish Mahogany, dwarf—

1in. one panel square framed	per ft. sup.	0	2	9
Ditto ditto bead butt	ditto	0	3	0
Ditto ditto ditto flush	ditto	0	3	2
Ditto ditto moulded one side	ditto	0	3	1
Ditto ditto ditto two sides	ditto	0	3	5
Ditto ditto bolection moulded one side	ditto	0	3	7
Ditto ditto stop-chamfered one side and plain stops	ditto	0	3	3
Ditto ditto ditto two sides	ditto	0	3	9
Ditto ditto two panels, square framed	ditto	0	3	0
Ditto ditto bead butt	ditto	0	3	3
Ditto ditto ditto flush	ditto	0	3	5
Ditto ditto moulded one side	ditto	0	3	4
Ditto ditto ditto two sides	ditto	0	3	8
Ditto ditto ditto and bolection ditto one side	ditto	0	3	10
Ditto ditto stop-chamfered one side and plain stops	ditto	0	3	8
Ditto ditto ditto two sides	ditto	0	4	4
1½in. one panel, square framed	ditto	0	3	0
Ditto ditto bead butt	ditto	0	3	3
Ditto ditto ditto flush	ditto	0	3	5
Ditto ditto moulded one side	ditto	0	3	4
Ditto ditto ditto two sides	ditto	0	3	8
Ditto ditto ditto and one side bolection ditto	ditto	0	3	10
Ditto ditto stop-chamfered one side and plain stops	ditto	0	3	8
Ditto ditto ditto two sides	ditto	0	4	4
Ditto ditto two panels, square framed	ditto	0	3	3
Ditto ditto bead butt	ditto	0	3	6
Ditto ditto ditto flush	ditto	0	3	8
Ditto ditto moulded one side	ditto	0	3	7
Ditto ditto ditto two sides	ditto	0	3	11
Ditto ditto one side bolection moulded	ditto	0	4	1
Ditto ditto stop-chamfered one side and plain stops	ditto	0	3	11
Ditto ditto ditto two sides	ditto	0	4	7
Ditto ditto raised panels one side	ditto	0	4	0
Ditto ditto ditto two sides	ditto	0	4	9
1½in. one panel square framed	ditto	0	3	6
Ditto ditto bead butt	ditto	0	3	9
Ditto ditto ditto flush	ditto	0	3	11
Ditto ditto moulded one side	ditto	0	3	10
Ditto ditto ditto two side	ditto	0	4	2
Ditto ditto and one side bolection ditto	ditto	0	4	4
Ditto ditto stop-chamfered one side and plain stops	ditto	0	4	2
Ditto ditto ditto two sides	ditto	0	4	10
Ditto ditto raised panels	ditto	0	4	3
Ditto ditto ditto two sides	ditto	0	5	0
Ditto two panels, square framed	ditto	0	3	8
Ditto ditto bead butt	ditto	0	4	0
Ditto ditto ditto flush	ditto	0	4	3
Ditto ditto moulded one side	ditto	0	4	0
Ditto ditto ditto two sides	ditto	0	4	4
Ditto ditto ditto and one side bolection moulded	ditto	0	4	7
Ditto ditto stop-chamfered one side and plain stops	ditto	0	4	5
Ditto ditto ditto two sides	ditto	0	5	2
Ditto ditto raised panel	ditto	0	4	6
Ditto ditto ditto two sides	ditto	0	5	3

		£	s.	d.
2in. one panel, square framed	per ft. sup.	0	4	0
Ditto ditto bead butt	ditto	0	4	3
Ditto ditto ditto flush	ditto	0	4	5
Ditto ditto moulded one side	ditto	0	4	4
Ditto ditto ditto two sides	ditto	0	4	8
Ditto ditto ditto and one side bolection moulded	ditto	0	4	10
Ditto ditto stop-chamfered one side and plain stops	ditto	0	4	9
Ditto ditto ditto two sides	ditto	0	5	6
Ditto ditto raised panel	ditto	0	4	9
Ditto ditto ditto two sides	ditto	0	5	6

HARDWOOD DOORS: ordinary sizes, Spanish mahogany—

1in. two panel, square frame	per ft. sup.	0	2	9
Ditto ditto bead butt	ditto	0	3	0
Ditto ditto ditto flush	ditto	0	3	2
Ditto ditto moulded one side	ditto	0	3	1
Ditto ditto ditto two sides	ditto	0	3	5
Ditto ditto stop-chamfered one side and plain stops	ditto	0	4	3
Ditto ditto ditto two sides	ditto	0	4	9
1¼in. ditto square framed	ditto	0	3	0
Ditto ditto bead butt	ditto	0	3	3
Ditto ditto ditto flush	ditto	0	3	5
Ditto ditto moulded one side	ditto	0	3	4
Ditto ditto ditto two sides	ditto	0	3	8
Ditto ditto bolection one side	ditto	0	3	10
Ditto ditto stop-chamfered one side and plain stops	ditto	0	3	6
Ditto ditto ditto two sides	ditto	0	4	0
1¼in. ditto, square framed	ditto	0	3	3
Ditto ditto bead butt	ditto	0	3	6
Ditto ditto ditto flush	ditto	0	3	8
Ditto ditto moulded on one side	ditto	0	3	7
Ditto ditto ditto two sides	ditto	0	3	11
Ditto ditto ditto and one side bolection ditto	ditto	0	4	1
Ditto ditto stop-chamfered one side and plain stops	ditto	0	3	9
Ditto ditto ditto two sides	ditto	0	4	3
Ditto ditto raised panels on one side	ditto	0	4	0
Ditto ditto ditto two sides	ditto	0	4	9
Ditto ditto top panel cut for glass, not including loose beads	ditto	0	3	6
Ditto ditto top panel sashed	ditto	0	4	0
Ditto ditto ditto in small squares	ditto	0	4	6
Add if hung folding	ditto	0	0	2

(NOTE.—In no case does hung folding include any labour to edges, such as rebates, beads, hollow or rounded edges.)

2in. two panels, square framed	ditto	0	3	9
Ditto ditto bead butt	ditto	0	4	6
Ditto ditto ditto flush	ditto	0	4	2
Ditto ditto moulded one side	ditto	0	5	2
Ditto ditto ditto two sides	ditto	0	5	7
Ditto ditto ditto and bolection moulded on one side	ditto	0	5	9
Ditto ditto top panels cut for glass, not including loose beads	ditto	0	4	0
Ditto ditto top panel sashed	ditto	0	4	9
Ditto ditto ditto in small squares	ditto	0	5	3
Ditto ditto stop-chamfered one side and plain stops	ditto	0	4	3
Ditto ditto ditto two sides	ditto	0	4	9
Ditto ditto raised panels one side	ditto	0	4	3
Ditto ditto ditto two sides	ditto	0	5	0
2¼in. ditto, square framed	ditto	0	4	6
Ditto ditto bead butt	ditto	0	4	9
Ditto ditto ditto flush	ditto	0	4	11
Ditto ditto moulded on one side	ditto	0	4	11
Ditto ditto ditto two sides	ditto	0	5	4
Ditto ditto ditto and one bolection moulded	ditto	0	5	7
Ditto ditto top panel cut for glass, not including loose beads	ditto	0	4	10
Ditto ditto top frame sashed	ditto	0	5	4
Ditto ditto in small squares	ditto	0	6	0
Ditto ditto stop-chamfered one side and plain stops	ditto	0	5	2
Ditto ditto ditto two sides	ditto	0	6	0
Ditto ditto raised panels one side	ditto	0	5	6
Ditto ditto ditto two sides	ditto	0	6	6
Hung folding add	ditto	0	0	2
1¼in. four panels, square framed	ditto	0	3	0
Ditto ditto bead butt	ditto	0	3	3
Ditto ditto ditto flush	ditto	0	3	5
Ditto ditto moulded one side	ditto	0	3	4
Ditto ditto ditto two sides	ditto	0	3	8
Ditto ditto ditto and one side bolection moulded	ditto	0	3	10
Ditto ditto top panel cut for glass, not including loose beads	ditto	0	3	3
Ditto ditto top panels sashed	ditto	0	3	9
Ditto ditto ditto in small squares	ditto	0	4	3
Ditto ditto stop chamfered one side including plain stops	ditto	0	3	6
Ditto ditto ditto two sides	ditto	0	4	0
Ditto ditto raised panels one side	ditto	0	3	9
Ditto ditto ditto two sides	ditto	0	4	6
Hung folding extra	ditto	0	0	2
1¾in. four panels, square framed	ditto	0	3	3
Ditto ditto bead butt	ditto	0	3	6
Ditto ditto ditto flush	ditto	0	3	8
Ditto ditto moulded one side	ditto	0	3	7
Ditto ditto ditto two sides	ditto	0	3	11
Ditto ditto ditto and one side bolection moulded	ditto	0	4	1
Ditto ditto top panels cut for glass, loose beads not included	ditto	0	3	6
Ditto ditto top panels sashed	ditto	0	4	0
Ditto ditto ditto in small squares	ditto	0	4	6
Ditto ditto stop-chamfered one side including plain stops	ditto	0	3	9
Ditto ditto ditto two sides	ditto	0	4	3
Ditto ditto raised panels one side	ditto	0	4	0
Ditto ditto ditto two sides	ditto	0	4	9
Hung folding extra	ditto	0	0	2
2in. four panels, square framed	ditto	0	3	9
Ditto ditto bead butt	ditto	0	4	0
Ditto ditto flush	ditto	0	4	2
Ditto ditto moulded on one side	ditto	0	4	1
Ditto ditto ditto two sides	ditto	0	4	5
Ditto ditto ditto one side bolection moulded	ditto	0	4	7
2in. four panels, top panels cut for glass, loose beads not included	per ft. sup.	0	4	0
Ditto ditto top panels sashed	ditto	0	4	6
Ditto ditto ditto small squares	ditto	0	5	0
Ditto ditto stop-chamfered one side including plain stops	ditto	0	4	3
Ditto ditto ditto two sides	ditto	0	4	9
Ditto ditto raised panels one side	ditto	0	4	6
Ditto ditto ditto two sides	ditto	0	5	3
Hung folding extra	ditto	0	0	3

CEMENTS AND MORTAR MIXING.

SOME valuable notes on cements, mortars, and concretes are given in a paper by Mr. William H. Grant before the American Society of Civil Engineers. The notes were made while superintending the construction of the Naval Observatory on Georgetown Heights, Washington, these being all fireproof, the foundations deep, and the walls thick, of brick, gneiss, and marble. The following requirements for cement were proposed, this cement to be best imported Portland. For fineness it was necessary to pass a sieve of 2,500 meshes with a residuum of not over 5 per cent; for set, neat, the initial set to be in not less than 20 minutes; for tensile strength, for seven days, 360lb. to 375lb.; the domestic cements were, for fineness, to pass a sieve of 2,500 meshes with a residuum of not over 8 per cent.; for set, neat, initial set in not less than 20 minutes; for tensile strength, neat, one day, 40lb. to 50lb.; seven days 90lb. These tests were not rigidly adhered to, as it was impossible to procure cement in quantities necessary to carry out the work without interruption. The author recounts the irregularities and shortcomings of the six brands of cement tried, only two of which were retained. The age it was impossible to obtain. The barrels ranged in weight from 368lb. to 402lb. net, making differences of 34lb., the average was 378lb. per barrel, or 18 per cent. under the standard weight of 400lb. net. The variations in quality were considerable; the initial set was variable, the general range being from 17 to 60 minutes. The tensile strength was also irregular. One-day tests gave from 50lb. to 200lb., average 108lb. The average of all, 369lb.; the highest of a few, 700lb. A few twenty-eight-day tests gave 405lb. to 670lb. The variations in the domestic cement were greater, and out of eight brands only one was continued—a cement largely used in Washington, from the Upper Potomac, but which is very variable. The average weight of barrels was 280lb. net, varying from 256lb. to 334lb., the net weight seven per cent. below the standard of 300lb.; but the set and tensile strength varied very much. The best of this cement showed a tensile strength neat for seven days of 100lb. to 191lb., though some went up to 250lb. The author refers to a few points which bear upon the subject of cements and mortars, and require careful supervision. 1. In mixing mortar, the liability of error in hand-mixing in measuring out correct proportions; the quantity of sand will vary as it is wet or dry, hence the value of mixing by machinery. The admixture of cement and sand is not uniform; all barrels of cement are assumed to contain equal quantities. 2. The second set of material, by adding water and re-mixing, is apt to be used to the detriment and the weakening of the mortar. 3. Laying brick without wetting is often the cause of bad work. 4. Bedding brick, laying it in full bed of mortar, filling end and side joints in one operation, is neglected; the vertical joints are left. 5. Grouting, which is not desirable in the execution of sound work. The paper contains other observations on mortar and testing cement. The subject of concretes, with experimental results, is a further topic discussed. The "personal equation" in testing cements or mixing mortar is no doubt very important, and often neglected in large works, where it cannot be discovered.

BOOKS RECEIVED.

A Practical Treatise upon Warming Buildings by Hot Water. By CHARLES HOOD, F.R.S., and re-written by FREDERICK DYE, author of "Hot-Water Supply," &c. (London: E. and F. N. Spon.)—Mr. Dye, whose series of articles on "Hot-Water Engineering" in our pages has lately been completed, has undertaken the re-compilation of Mr. Hood's well-known treatise on Warming Buildings, and the bulky volume on our desk shows that the editor has availed himself of every new method and appliance. In looking over the treatise we find the original author's rules and principles have been retained; but the work has been greatly expanded by the addition of a chapter upon the laws of heat in its application to heating by hot-water. The conduction and radiation of heat and connection, and the actions resulting therefrom, are fully treated. Another chapter deals with the theory of circulation of water, in which Hood's theory is quoted, and the diagrams of different methods of the descending or return-pipe will be found of value to the student who is desirous of making himself familiar with the theory of circulation. Other elementary matters, such as air in pipes, air-pipes and cocks, provision to replenish loss by evaporation, supply cisterns, position of cistern and connections, follow; and Mr. Dye is here abreast of the times, and points out the advantages of certain methods of and materials for making air tubes, and the avoidance of defects, such as downward dips in the pipe above. The proper position of cisterns, irregular forms of apparatus, and the faults of dipping pipes below doorways are discussed, the author showing very clearly the mistake of doing anything to impede the circulation or motive power, which depends on the increase of vertical length of the flow and return pipes. That a dip causes a check is easily proved, as shown on pages 65 *et seq.*, and young architects will do well to study this portion of the treatise, with the suggestions that follow. The examples of engravings given of hot-water apparatus, from very simple to more elaborate forms, are of practical value, and the details and forms of apparatus suitable for hothouses, halls, and buildings are fully discussed. Many forms of boilers, both horizontal and vertical, are illustrated, including such well-known types as Keith's, Weeks and Co's. Examples of low and high pressure apparatus for buildings, and the methods of connecting radiators and coils, are discussed, the author pointing out the merits of each invention. Warming by hot air, and the valuable appliances of E. H. Shorland, Constantine and Son's convoluted stoves; types of radiators, horticultural work, and appliances and fittings for all sorts of buildings are illustrated and described. The statutory regulations of the Metropolitan Building Acts as they affect heating are usefully appended to this very complete and practical guide to warming.——Chubb and Sons' Lock and Safe Company issue a remarkably neat and handy little Diary and Almanac for 1892, giving a most useful record of great fires and robberies.——*The City Diary and Almanac* (London: W. H. and L. Collingridge) is issued for the twenty-ninth time.—— The *Practical Catechism.* By ROBERT GRIMSHAW, M.E., Ph.D. (New York: John Wiley and Sons).—This is a small but useful little book in catechetical form. The author has taken the questions from various sources—manufacturers, merchants, consumers, railway men; some have been questions in various scientific journals, others are legal, the result of which is that the questions are devoid of that unreal character found in ordinary school catechisms. Under "Building" we find this question, "Is there any way of making slate roofs with a very flat pitch? A. They have been laid with a pitch as flat as only ¼in. per foot; each slate being exposed full face to the weather, and laid in cement consisting of liquid coal-tar thickened with cement or ground slate, slaked lime, and linseed oil; the compound being applied hot and the joints payed." Further on the following maximum loads are given for floors in addition to weight of floor itself: For steel bridges, 80lb. per square foot; dwelling floors, 40lb.; churches, theatres, and ball-rooms, 80lb.; warehouses, 250lb.; factories, 200lb. to 400lb. These, we presume, are only approximate. Building stones; calculations of areas, including the puzzling irregular figure; cements; chemical technology, colouring metal, disinfectants, fluxes, foods, foundry practice, various engineering questions, strength of beams and materials, ventilation, &c., are among the subjects treated, these being arranged in alphabetical order. The answers are, in most cases, eminently practical, and are of a kind not to be found in ordinary textbooks. Mr. Grimshaw's little book will be a valuable addition to the practical engineers' and general students' library.

An exhibition of wood-carving, repoussé work, hammered iron, and other house industries is on view at the Grosvenor Hall, East Grinstead. The formal opening took place on Wednesday week.

Building Intelligence.

Burton-on-Trent.—A number of additional improvements have just been completed in St. Paul's Church, Lord Burton, the patron, again defraying the entire cost. A sacristy has been erected of stone on the north side of the chancel. The interior is octagonal in form, and each panel carries an inscription in Latin, while the three-light window has been filled-in with stained glass, representing the Crucifixion and the Passion. Outside there is a figure of St. Paul, under a canopy, the work of Messrs. Farmer and Brindley. The choir vestry has been improved and enlarged; bracketing has been placed over the arcading in the north transept wall, and the arcades are to be filled-in with saints. A 12ft. high cross has been placed in front of the chancel arch, and this, among other things, bears the text, "God so loved the world," while windows have been inserted above, in which appear figures of angels looking with adoration on the cross and the censers. The side chapel has been enlarged by the removal of a clergy vestry, and memorial windows are being placed therein. The side windows will bear figures of saints. The second Communion table has been moved to beneath the east window, and an alabaster retable has been added. The stone work has been carried out by Mr. G. Hodges, of Burton; the woodwork by Messrs. Rattee and Kett, of Cambridge; and the stained-glass windows by Messrs. Barlison and Grylls, of London. All has been done under the superintendence and from the designs of Mr. G. F. Bodley, A.R.A.

Leatherhead.—The parish church was re-opened on Tuesday week after restoration effected at a cost of £2,500. In 1873 the whole of the church was reseated in oak, and a new roof was built to the chancel and transepts. The present restoration has consisted in placing a new roof to the nave on the lines of the original roof, the reopening of the old porch, the building of a choir vestry at the west end of the south aisle, the formation of a new arch to complete the north arcade, the rebuilding of the chancel arch, and restoration of the rood loft, the removal of west, north, and south galleries, the paving of nave and aisle with wood blocks laid on concrete, and the opening of the tower to the nave of the church. A mosaic pavement with marble steps, and new altar-rails have been given as memorials. The works have been carried out by Messrs. Longley, builders, of Crawley, under the direction of Sir Arthur Blomfield, A.R.A. Mr. Huntley was the clerk of the works.

Manchester.—A new Parcel Post-Office in Moreton-street, Strangeways, close to the Victoria and Exchange railway stations, was opened on Saturday, and is said to be the largest and best-appointed building of its kind out of London. The sorting-office alone measures 226ft. by 70ft., and is surrounded by a gallery 23ft. wide. Covered yards are provided at each end of the office for the arrival and despatch of the mail vans. There are also offices and retiring-rooms for the staff, which numbers more than 100 persons at ordinary times. When the building is completed there will be a public office with entrance from New Bridge-street. A large room in the basement, having the same dimensions as the sorting-office, will be used as a basket store-room. Light is obtained in the daytime from windows on either side and from a considerable area of glass in the roof. Concrete and fireproof floors and walls have been constructed throughout, so as to reduce the risks from fire. The new buildings were designed by Mr. Henry Tanner, of Her Majesty's Office of Works, London, and executed by Messrs. Robert Neill and Sons, of Manchester.

Rochester.—As briefly noted by us last week, a movement has been set on foot, chiefly at the suggestion of the Dean (Dr. Hole), for the complete restoration of Rochester Cathedral, on which a sum of nearly £20,000 has been expended during the last few years. It is now proposed to complete the western front, to raise the roofs of the choir and transepts, and to add a lofty spire to the present central tower. This, it is anticipated, will require a further expenditure of £20,000. Subscriptions amounting to between £2,000 and £3,000 have been already announced.

Spital-square, E.C.—On Wednesday week the Chancellor of the Exchequer presided at the opening ceremony in connection with the new girls' school in Spital-square, Bishopsgate. The new buildings have been erected on the south side of Spital-square, in place of the school buildings formerly situated in Skinner-street and Primrose-street, and comprise large schools, a chapel 63ft. by 44ft., and curate's residence. The new structures have been designed to accommodate 550 pupils, and are planned to meet the requirements of a modern middle-class girls' school. The style is Collegiate, of the Jacobean period. The buildings have been designed and carried out by Messrs. T. Chatfeild Clarke and Son, architects, 63, Bishopsgate-street, Within. The contractors were Messrs. Woodward and Co., 13, Wilson-street, Finsbury, and Mr. P. J. King was the clerk of works. The total cost of the buildings has been about £18,000, which is exclusive of the value of the land. The school was illustrated in the Building News of Oct. 2 last.

Upton Park.—The new vicarage for the parish of St. Stephen's, Upton Park, which has been in course of erection for the last six months, was completed and ready for occupation the early part of last month. The vicarage has been erected from moneys supplied by the Governors of Queen Anne's Bounty and the Ecclesiastical Commissioners for England. The total cost has been £1,316. On the ground floor the dining-room and study are connected by folding-doors, so that when required for parish purposes the two can be thrown into one, and make a room 37ft. by 15ft. There is, in addition, a small private study for the clergyman, and all the usual domestic offices on the same floor. The building has been carried out from the design and under the superintendence of Mr. H. Herbert Francis, architect, of Palmerston-buildings, London, and Loughton, Essex; and the builder, Mr. Charles Foster, of Loughton, has fulfilled his contract in a very satisfactory manner.

ARCHITECTURAL & ARCHÆOLOGICAL SOCIETIES.

Edinburgh Architectural Association.—A meeting of this society was held on Thursday, the 17th inst., Mr. John Kinross, president, in the chair. Mr. Jamer Bruce, W.S., moved a resolution requesting the Government to take steps without delay for restoring the Royal Palace of Linlithgow, which has been in a roofless state since the fire of 1746. Mr. Thomas Ross, architect, in seconding the motion, stated that the present state of the palace was simply deplorable from an historical and architectural point of view. The motion was unanimously adopted, and it was agreed to forward copies of it to the First Commissioner of Her Majesty's Works, to the Secretary for Scotland, and to the Lord Advocate. Mr. G. Aitken, architect, gave notice of a motion in favour of the removal of the Wellington Statue from its present site, on the grounds chiefly that it was now an obstruction to the thoroughfare, and that it was incongruous with its surroundings. Mr. J. M. Gray, curator of the Scottish National Portrait Gallery, afterwards read a paper on "Sir Henry Raeburn and Portraiture in Scotland." Having pointed out the historical value of portraiture, Mr. Gray remarked that in Scotland the usual sources of portraiture were sepulchral slabs and brasses, illuminated manuscripts, and coins, and sometimes charters. Dealing specifically with painted portraiture, Mr. Gray described, as one of the first great examples, splendid as a specimen of religious and art portraiture alike, the altar-piece of Trinity College Church, Edinburgh, now preserved in Holyrood — one of the finest examples of Early Flemish art in Britain, and certainly by far the finest in Scotland. Then Mr. Gray treated of the portraiture of Queen Mary's time, taking particular note of the portraits of the ill-fated Queen herself. There was no doubt, he concluded, as to what Queen Mary was really like, though, as most of the artists who portrayed her were comparatively poor painters, we did not realise the beauty and loveliness attributed to her, but had, as it were, a map of her features. Mr. Gray next directed attention to some of the leading Scottish portraitists of succeeding centuries, giving particular notice to George Jamesone, William Aikman, and Allan Ramsay the younger —until he came to Raeburn, the Scottish portraitist, said the lecturer, in whose best work they found almost at its highest the purely æsthetic value that came from technique, from the masterly use of material, and one in whom they found this purely sensuous charm united to the very utmost value of record. No other Scottish portrait painter was worthy to stand by his side. The only other Scottish artist fit to be named in the same breath was a *genre* painter, David Wilkie. On the motion of Dr. Marshall, rector of the High School, seconded by Mr. James Orrock, R.I., London, Mr. Gray was thanked for his paper.

Glasgow Archæological Society.—The members of the Glasgow Archæological Society held a meeting on the 17th inst. in the Hall, Bath-street, Glasgow, Mr. C. D. Donald presiding, when Mr. William Jolly read his third report on "The Exploration of the Antonine Wall," and Mr. George Neilson submitted a paper on "The Purpose of the Periodic Expansions on the Antonine Wall." Mr. P. Macgregor Chalmers also read a paper on "The Vallum, Berm, and Fosse: their Correlation," and Mr. James Lang spoke on "The Theory of a Berm between a Rampart and a Fosse."

The Electric Lighting of Houses.—At the meeting of the Dundee Institute of Architecture, Science, and Art, held on the 10th inst., a lecture was delivered on the electric lighting of houses by Mr. T. Grant Ogilvy, Principal of the Heriot-Watt College, Edinburgh. Mr. Charles Ower, president of the institute, occupied the chair. The lecturer first explained the nature of electric light by a series of illustrations. He then described how the light could be distributed by means of wires in dwelling-houses, and exhibited a box of fittings to the audience. These consisted of "leads," "glow lamps," "switches," and other appliances. The fitting up of the "leads" on houses was also explained. In providing electric lighting in houses much more decorative art could be displayed than in gas-fittings. The light could be more advantageously placed for illuminating the rooms of houses, while, by the arrangement of "switches," it could be lighted up at once by the touch of the switch at the door, or shut off altogether when not required. Referring to the cost of electric lighting as compared with gas, he said that a 16-candle electric glow lamp gave a light equal to a No. 5 gas-burner. A No. 5 burner consumed 5c.ft. of gas an hour, and that was at the rate of 1,000ft. of gas in 1,200 hours. The electric lamp would produce the same effect, and consume an equal quantity of electricity in the above time, and at the rate at which electricity was charged, with the cost of the lamp added, the price would amount to 6s. 6d., which was twice the price of gas as it was sold in Dundee. As against that, electricity could be more economically used, and it did not vitiate the atmosphere as the burning of coal-gas did. The adoption of electric lighting in large warehouses and shops would be greatly conducive to the health of shop assistants.

CHIPS.

A movement is on foot for placing a portrait of Mr. Alfred Waterhouse, R.A., the ex-president of the R.I.B.A., in the Institute room, at 9, Conduit-street. The proposal, as was to be expected, is being well taken up, and already 300 members of the Institute have promised subscriptions.

The County Council of Kent having been saddled by a recent legal decision with responsibilities as to the maintenance of footpaths on main roads, is apparently preparing to meet them. The county surveyor has issued a series of questions having reference to the nature and cost of the material used in footpaths, the durability of the materials, and the average expenditure during a series of years on the paths.

Messrs. John Ellis and Sons, of 8, Market-street, Leicester, the proprietors of the great Barrow-on-Soar Lime and Cement Works, have issued a very interesting and useful almanack for 1892, giving, besides the usual calendar and other useful information, an accurate series of representations of fossils from the blue lias limestone at their quarries.

New buildings for the Hampshire County Council are about to be erected at Castle Hill, Winchester, from plans by the county surveyor, Mr. J. Robinson, C.E. The quantities are being prepared by Mr. Henry Lovegrove, of London, who has been appointed by the council for that purpose.

The foundation-stone of the new assembly rooms to be added to the town hall at Dalkey, was formally laid last week. Mr. Higginson, of Dalkey, and recently one of the town commissioners, is the contractor.

TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, 332, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

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RECEIVED.—C. G. R.—G. and C.—J. P. and Son.—W. W.—J. A. H.—R. B. C. Co.—J. B. and Sons.—J. G.

"BUILDING NEWS" DESIGNING CLUB.

DRAWINGS RECEIVED.—"Filiolis," "Plan," "Peterborough," "Unitate Fortior," "Smilash the Goth," "Old Postage Stamp," "An Old Hand," "Nil Nisi Bonum," "Vulcan," "Sniklaw," "Jamrach," "La Cigale," "Mars," "Q. E. F.," "Mica."

Correspondence.

THE ARTY-CRAFTY ARCHITECT.

To the Editor of the BUILDING NEWS.

SIR,—The year closes with a plethora of dangerous art cant. Mr. H. Wilson, a week or two back, favoured the Architectural Association with a burst of maudlin, dreamy impossibility, which none but an Architectural Association could have listened to with patience. Let him go and work his stone, lay his bricks, forge his metal, and do his plumbing-work himself, on the building, and see where his hands, his mind, and his time are for his business as an architect. And if he thinks that that heterogeneous collection of architectural bits named Holy Trinity Church, Sloane-street, and that hideous structure in Exmouth-street, Clerkenwell, used as a church, are a sufficient result for the character of work he preaches, he is entitled to his self-satisfaction. But even such feverish nonsense as that thrust into the ears of the young men of the A. A. could not be closed without the usual fling at that searching system of examination at work at the Institute which is so distasteful to those who wish to leap at a bound, upon the backs of their pretty sketches, into the position of a full-fledged architect.

Then comes Mr. T. G. Jackson, who also selects the A. A. as the fittest arena for his disquisition on the training of architects; but Mr. Jackson now is not the Mr. Jackson of "Memorialist" fame. Then construction and business were far beneath the notice of the lofty art-architect: now construction, and even specification-writing, would appear to be not unimportant parts of an architect's training. Further, even a little archæology and study of the history of architecture are not utterly condemned; so that, without admitting it, Mr. Jackson comes really to that very curriculum upon which the Institute examines. Now, what has caused this sudden transformation? Has the *Times* leader taught the "Memorialists" that the public have been awakened to their tricks and their shams, their cant and their deceit? Are they unable to point to enough "art" amongst them in London to atone for the employment of the engineer and the agent? Has Mr. William H. White, in his pungent and sound commonsense paper read before the Sheffield Society of Architects the other day, made them tremble for that little five per cent., which even the soaring heights of their sublimest art-feeling will not permit them to forget? Do they fear that the public will be taught that two per cent. is enough for all the sort of art they can find in London, and that the remaining three will go to the engineer and the agent? It seems very much like it. Of course, Mr. Jackson touched the hearts of certain A.A. members who have yet to deal with bricks, mortar, and the builder. When they have had as much experience as Professor Kerr in the realities of an architect's life, they will wonder how they could have been taken in by the effusions of those who are mere infants in practice as compared with the Professor. But it is not because Professor Kerr has passed through the fire of constructive knowledge and business aptitude that therefore he is not in the highest degree as much a lover and disseminator of art as any of these new-fangled arty-crafty men who seem to be positively crying for a good whipping and relegation to the rudiments of their business! Mr. Reginald T. Blomfield need not worry himself about the Memorialists "coming over" to the Institute. As, of course, a mere unit of that body, representing nobody but myself, I say that we are better without them. It is, or should be, an Institute of "Architects."

But, Sir, although to those who are able to discount the foolish talk of these wild theorists, little harm is done, there can be no doubt that such papers as the two last read at the A. A. must have a very injurious effect upon the receptive minds of architectural students. It is a subject of regret that some decided protest is not issued by the Institute to the Association against the pernicious doctrines which the latter appear to encourage; and it would not be amiss to publish, for the benefit of all parents and guardians, a warning that their sons—architects' pupils—are being taught erroneous views, which will certainly land them and their clients in hopeless difficulties in the future.—I am, &c.,

WM. WOODWARD.

13, Southampton-street, Strand.

ROCHESTER CATHEDRAL.

SIR,—I have read, with feelings of dismay, a paragraph in the *Daily Telegraph* to the effect that "Dean Hole, of Rochester, has started a *comprehensive scheme* for the restoration of the fine old Norman cathedral of that city. *The plan is sufficiently ambitious;* it includes the placing of a lofty spire, *intended* to be the loftiest in England, on the *existing* tower, and the restoration of the west front."

So far as the latter portion of the "scheme" is concerned, by all means go on with it, but with the greatest discretion. But the *loftiest spire in England* on the *existing tower*—good heavens!!!—or on the existing cathedral even. Perhaps the next thing we shall hear of will be that in this most "comprehensive scheme" the Very Rev. Dean will have the fine old *Norman* cathedral *lengthened* east and west, in order to bring it into due *proportion* with the modern giant which is at present "in the air." There *may* it be (indeed, anywhere but Rochester), I feel sure, will be the prayer of all true lovers of our national architecture. I inclose my card, and remain—Yours, &c., H. E. J.

THE BUILDING ACT.

SIR,—On page 889 of your last issue a Mr. T. Henry Bartlett goes out of his way to pitch into the district surveyors. I do not know what right he has to set up as a judge; but he should know that about two years since the three leading societies connected with the building world recommended that no change be made in the duties and appointment of district surveyors. The fee system of payment is much the best, as it causes the officer to be active and vigilant, while the remuneration is proportionate to the work done.

As regards the question of district surveyors, there can be no doubt about the result of the change made by the County Council; very inferior men will apply for the posts—men who are young and cannot get work, and men who have reached forty years of age and found themselves failures. The old system produced good men. Look down the list of the London District Surveyors, and you will find at least sixty men who would never have offered themselves if they had not been allowed to practise. Mr. Bartlett's suggestion of a tribunal in the place of the Building Act Committee is excellent; but not, I think, new.—I am, &c., OBSERVER.

ROGERS v. JAMES.

SIR,—It is at times difficult to understand the decisions given by judges, and one cannot help feeling that Mr. Frederick Rogers has been hardly treated. It appears to me that if a distinct order had been given for the variations all would have been well; but these variations were chiefly made by the builder without instructions from the architect, who found them out afterwards, and then deducted their value.

In the reports of the case we hear nothing of the client being injured, as the variations are adjusted in the usual way. I know nothing of the case, except from the newspaper reports, so cannot tell why the jury awarded £58 on a job amounting to £2,500.—I am, &c.,

HENRY LOVEGROVE.

26, Budge-row, E.C.

CHIPS.

A meeting of the Association of Birmingham Students of the Institution of Civil Engineers was held at the Midland Institute on Thursday evening last, when the president, Mr. J. Edward Willcox, A.M.I.C.E., delivered a lecture on "The Details of Plumbing Work," which was illustrated by numerous diagrams. An interesting discussion followed.

The Barrow-in-Furness Board Schools are being warmed and ventilated by means of Shorland's patent Manchester grates, the same being supplied by Mr. E. H. Shorland, of Manchester.

The Local Government Board have just sanctioned a storm outfall drainage scheme at Leicester, estimated to cost £71,000, and the erection of two new refuse destructors, to cost £18,000 (exclusive of site), which works have been designed by the borough engineer, Mr. E. G. Mawbey, C.E. The storm outfall drainage scheme consists for the most part of a culvert down the valley of the Soar some 3¾ miles long, with a diameter of 8ft., and a discharging capacity of about 70,000,000 gallons per day, in order to give a free outfall into the river Soar for the main sewers of the town whenever the pumps are overpowered. We understand that these works will be proceeded with as soon as the contracts can be got out.

On Saturday a stained-glass window was unveiled at Ince parish church. The subject is the two sisters of Bethany, and the work has been carried out from designs by Messrs. Heaton, Butler, and Bayne.

Mr. Lemon, the mayor of Southampton, has been appointed to act as engineer to superintend the reconstruction and completion of sewerage works at Richmond. Mr. Lemon has also been appointed consulting engineer to the Poole Town Council.

All Saints' Church, Hertford, was completely destroyed by fire on Monday morning. The fire was discovered at five o'clock, and it then had such a hold upon the building that there was no chance of subduing it. A valuable organ and several memorial windows were destroyed. The only things saved from the fire were the old registers. Last Sunday night the church was broken into by burglars. The building is partially insured.

Madame Schliemann has decided to go on with the excavations commenced by her late husband at Hissarlik, but on a rather smaller scale than when he was alive. The work will be continued until the so-called "old town" has been entirely brought to light again.

The town council of Maidstone have decided, in the words of the resolution, to erect a "perfectly-planned" technical school upon, or in close proximity to, the present museum premises, and have allotted, towards the cost of building such a perfectly planned edifice, the sum of £4,500. Perfection in planning will be sought for with the aid of a competition.

Intercommunication.

QUESTIONS.

[10684.]—**Strength of Materials.**—There is a question in the paper on Strength of Materials, &c., in the Examination in Architecture held by the R.I.B.A. in March last, I think, wherein it is wished that the student will point out what weight placed in the centre of a beam will equal certain irregular weights caused by piers resting on the beam at various intervals. I should be glad to know how these irregular weights can be equal to a central load, as in my studies in this subject, I have never seen any reference to the possibilities of such equality in any way.—A. R. F. T.

REPLIES.

[10663.]—**Timber.**—Mr. Stevenson, in crying down F. A. Michaux, because of the time which has elapsed since he wrote, is not consistent when he himself is actually following an older authority in W. Aiton, who was head gardener at Kew in 1759, and died in 1793, and from whom J. C. Loudon obtained his information as to red pine. The originator of the epithet Pinus resinosa was probably D. C. Solander, a Swedish botanist born in 1736, but domiciled in England. He accompanied Sir Joseph Banks and Capt. Cook in their voyage round the world. Solander could have had little or no practical acquaintance with American red pine, for in his later years he was assistant librarian at the British Museum, hence the blunder in calling it P. resinosa. Michaux was quite right in correcting it to P. rubra, which probably would now have been adopted by all botanists but for the other term having been previously adopted by Aiton, Lambert, and others in their works. P. resinosa is obviously a most misleading term to use for designating the red pine, which Mr. Stevenson calls "an undurable wood," and by no means the most resinous of the pines. It was so obviously a blunder, that Mr. Tredgold, in his "Carpentry," applied it to pitch-pine, in which he was followed by Gwilt in his "Encyclopædia of Architecture." In the preface to his little book on the "Timber Trees of Commerce," Mr. Stevenson states that "For the botanical portions of my book I have relied almost exclusively upon the great standard work upon the subject, J. C. Loudon's 'Arboretum et Fruticetum Britannicum, London, 1838.'" Now as regards American timber trees, I have no hesitation in preferring Michaux as an infinitely better authority than J. C. Loudon (born 1783). Both he and his father, André Michaux, spent many years travelling in America making drawings, and describing on the site every tree he included in his great work, the "North American Sylva."—drawings accurately executed and beautifully coloured that won the admiration of everyone: his descriptions are most clear and systematic, and if this does not constitute an authority to be preferred to a botanist like J. C. Loudon, I do not know what does. Loudon could only have obtained his information second-hand. He was a most voluminous writer on several subjects, and was an invalid for the greater portion of his life. In much of his work he was assisted by his wife. After Michaux's death the subject was continued by Nuttall, an American botanist, and the edition of the "N.A. Sylva" quoted by me, and published in 1851, was edited by J. Jay Smith, another American botanist. As to the quality of red pine, which is much better known on the west coast of England and Ireland than at Hull, which imports its timber from the Baltic, my own experience, which extends back many years, is in accord with Laslett, who has not been correctly quoted by Mr. Stevenson, for in his book on "Timber," pp. 237 and 329, Laslett gives the average transverse strength and vertical or crushing strength of Riga fir as inferior to red pine, although his experiments show Dantzic fir to be superior. I may also mention that Mr. Stevenson has omitted to state that Laslett describes pitch-pine as Pinus rigida. To conclude, I would suggest to "Woodenhead" and "Sappy," if they reside in or near London, to consult the original authorities, and not be misled by Mr. Stevenson, Mr. Hurst, or anyone else who are of no authority as botanists.—J. S.

[10678.]—**Surveying.**—I think your correspondent "C. C. S." is rather severe on "A. W." for his harmless and innocent question. Though not a surveyor myself, it is a question that has often occurred to me, and I think there is some point in it. It seems to me to depend on whether the ground in question is to be surveyed for building or for agricultural purposes, and I should like to know whether it is the custom of surveyors to make any difference between the two. Supposing Farmer A. has a large perfectly level field measuring exactly 100 acres on one side of the road, while on the other side Farmer B. has an exactly similar field measuring exactly the same horizontally; but in this case, though the boundaries are perfectly level all round, immediately within the boundaries the ground rises on all sides, forming an immense hill in the centre. I submit that in these cases, though the two fields will show exactly the same size on plan, yet that of Farmer B. contains a vastly larger acreage either for pasturage or for the growth of cereals or root crops than that of Farmer A., and Farmer B.'s field will keep so many head of cattle in pasturage a much longer time than that of Farmer A. In other words, the superficial area of Farmer B.'s field is in reality much more than that of Farmer A. This question reminds me very much of a dispute between two Americans as to which of their respective States was the largest. I believe Georgia and Pennsylvania were in question. Yankee No. 1 boasted of Georgia extending over so many hundred square miles of territory, whereupon Yankee No. 2 retorted, with a remark which I think was very much to the point, that if all the hills in Pennsylvania were rolled out flat, it would lick Georgia into fits.—Vedra.

[10681.]—**Qualities of Timber.**—In reply to "J. H. S." I beg to offer the following remarks on "the best ports and brands of fir for building purposes at the present time." Riga affords very little hewn fir timber, which is matter of regret, for it is invariably good in quality, but hewn somewhat round on the face, "barrel sided." The sawn goods, "deals and battens," are very poor in quality and low in price, consequent upon their being so sappy. Dantzic and Memel, as of old, furnish the best hewn timber in Europe. It is quite a mistake to think these ports are used up: the reason why it is not so common in this country as formerly is that it is pressed out of the market by the American pitch-pine. The sawn goods from Memel are not generally in favour, and are now seldom seen they are good, hard, sound planks, but very sappy, and although invariably 4in. in thickness, they have been pressed out of the trade by similar sized Swedish goods. Fir timber for building purposes can be obtained from Baltic sawn goods which are shipped from 4in. by 14in. down to 1in. by 4in. Timbering above 4in. in thickness must be obtained from hewn timber, and here Dantzic and Memel timber is the best; but Swedish hewn timber, a soft, tender, class of wood, is often used. There are three qualities of Dantzic, and two of Memel and Swedish, the sorting being conducted in regard to the size and number of the knots, little regard being paid to the presence or absence of sap. The above notes dispose of timber over 4in. in thickness. With regard to those of 4in. and under, a deal may be said. The system of cutting these from Dantzic or Memel fir is practically a thing of the past, as it involves nearly double the cost of obtaining them from other shipments of converted goods. Setting this aside, we have a wide and a debatable field in Swedish, Finnish, and Russian goods, the latter only carrying the work so far as 3in. requirements are concerned. The merits of Russian goods is their softness and mildness. Hence they are valued for wrought or joinery work; but the common qualities shipped for timbering purposes have little to recommend them. They cannot, from their softness, be accounted durable, and they are shaken and coarse, the knots being invariably dead or faulty. I am of opinion that the medium qualities of the best shipments of Swedish goods are the most suitable goods in the trade. They are harder and more resinous, and hence more durable than Russian goods; but they are not so suitable for joinery, as the wood is liable to twist and warp in work. The best shipments of Swedish sawn goods are those of Gefle, Soderhamn, and Sundswall. These have red quality marks painted on the ends, and are shipped in four grades: mixed, thirds, fourths, and fifths. The furnishing of the marks is too great a subject here; but I may inform "J. H. S." that a book is published hereon by W. Rider and Son, London. A favourite London stock, and one often specified by architects, is Dixon Bros. and Co., of Swartvik, branded D. B. and Co. = B. D. = D. = M. F. D. for the respective grades. The qualities are regulated by the number and size of the knots, the best being not entirely free or clean; sap is not a matter of much consideration, and the lower qualities in Swedish stock may not be altogether die-square on the edges, in which latter respect they differ from Finnish and Russian goods. Finnish shipments are uniformly good for timbering; but they are too hard for joinery work. The best shipments are those of Bjorneborg, Kotka, and Wyborg; but they vary, especially at the latter port, with different shippers. These goods, along with those of Russia proper, are distinguished by the marks being impressed or stamped with the hammer, whereas the Swedish goods have the marks stencilled on in red paint. In some of the White Sea goods the qualities are marked with red chalk on the sides, a custom very common in American goods. No goods are shipped seasoned, in the full sense of the term: they are sufficiently dried to admit of shipment, and being placed in work as timbers; for bench work they require further seasoning. New Zealand woods, other than Kauri pine, are not readily obtainable in this country, and cannot be procured away from London. The shipments of Kauri pine, this and last year, were on a large scale to London, Hull, Newcastle, Glasgow, Liverpool, &c.; but the slow manner in which it has passed into consumption will not, I am afraid, induce other shipments to come forward. Most woods will shrink whenever a plane is put on them—i.e., when the dry face is removed; but Kauri pine is alone credited, in addition, with shrinking longitudinally. Australian woods must have some special qualities to warrant the high cost of their shipment to this country. The most likely, in my opinion, to permanently win a place is the Jarrah, or Australian mahogany (Eucalyptus marginata), of which Messrs. J. Walsh and Co., 81, Gracechurch-street, London, E.C. (who have published a pamphlet hereon), are the sole agents.—Wm. Stevenson, Queen's Dock, Hull.

CHIPS.

Mrs. Nicholls, the wife of Mr. D. Cubitt Nicholls, M.S.A., died on Sunday at their residence, 34, Brunswick-square, W.C., aged 50 years.

Under the auspices of the Glasgow Galleries Trust, an illustrated lecture on the subject of "The Sculptures of the Parthenon" was given on Saturday night by Mr. Pittendrigh Macgillivray, sculptor, in the Glasgow Corporation Galleries, Sauchiehall-street, in presence of a large audience.

The important post of Assistant-Director of the South Kensington Museum has been conferred by Viscount Cranbrook on Mr. C. Purdon Clarke, C.I.E., F.R.I.B.A., who was only recently promoted from the curatorship of the India Museum to the keepership of the art collections at South Kensington. Mr. Clarke will enter upon his new duties on the 1st proximo.

Mr. Lacey W. Ridge, F.R.I.B.A., writes that a grille which has been missing from Chichester Cathedral for some time has been found in a very dilapidated condition, and has been replaced in the building. The grille has been used as a model by Messrs. Halstead in making the screens by which the sides of the choir have recently been inclosed.

M. Vaussenat, a civil engineer of great eminence, and constructor of the famous observatory on the summit of the Pic du Midi, which was built about 15 years ago, has just died at Bagnères de Bigorre. He was a geologist of high repute, many of the discoveries in the Dauphiny and Savoy Alps being due to his researches.

Legal.

THE RIGHT OF PROSPECT.

NOT unnaturally, many people have an idea that a right to a prospect or view, or a "right of sight" as it is sometimes termed, can be acquired by prescription, as in easements, in the same way as can rights to light and air. But though this looks reasonable enough, it has never been recognised by English law. The idea of an old lawyer's was that in matters of necessity, such as light and air, these rights could properly be allowed; but a view or prospect from a house or building being merely matter of delight, could not be thus adopted. In one of the old cases, the authorities of Gray's Inn attempted to stop the erection of buildings which blocked the view from their gardens, and they failed on the ground that there was no rule of law by which building to stop another's prospect became a nuisance. And it was further pointed out that if such a right to view existed, it would prevent all new buildings, and towns would cease to grow. But there may, of course, be an agreement binding upon the parties to it, by which a certain prospect can be procured over specified land. These covenants may run with the land, and so maintain an open view from the property affected; but a right thus given by agreement is entirely different from an easement, as it cannot arise from mere prescription.

Nor can there be any right of this kind to an uninterrupted view of a shop window, for instance, or a shop sign. The Courts have always refused to recognise any prescriptive right to such a free line of view. In one case of a shop in Bond-street, the plaintiff sought to prevent his neighbour from making such alterations in his own premises as would prevent the plaintiff's shop from being seen so far down the street as it had been before. But the Court refused to interfere, and declined to recognise the acquisition of any right to an uninterrupted view by people coming up the street, as claimed by the plaintiff. So with a shop sign, such as a pawnbroker's three balls; there was nothing to prevent an adjoining neighbour building on his own ground so as to obstruct the distant view of such a sign, however long it may have been enjoyed before. But although there is no such easement as a right of prospect or view, yet it sometimes happens that a covenant not to obstruct a view—as, for instance, of a shop window—will be implied where a tenant takes premises upon which such a view obviously exists. This, however, would entirely depend on the facts of the case in question. Neither is there, in law, any right to an undisturbed privacy; and in the absence of covenant a man can always open windows overlooking his neighbour's land and house—although to his discomfort, and even damage—leaving that neighbour to put up a hoarding if he likes to block those windows.

Fred Weatherfield, Solicitor.
1, Gresham Buildings, Guildhall, E.C.

Note.—All questions for reply in this column must be headed "Building News," and must reach my offices, as above, by *Tuesday* morning to insure answer same week.

Leith.—Contract.—Signature.—The builder who has signed is undoubtedly bound by the terms of the contract, except in so far as he has waived them, and supposing that the architect acted as agent of the employer in drawing up the contract, he may have been authorised to sign it also on his behalf. But, even without his signature, the owner would be bound by a contract to which he had otherwise assented and upon which he had acted, and because it has already been partly performed.

P. C.—Party-Wall.—Base.—The "base" of the party-wall can only be the part resting on foundations in the ground. Your argument is ingenious, but the effect of adopting your plan would be to have the wall crack just where the Act says it should be strong. I therefore consider that you must thicken the wall down to the base upon the ground.

A. D.—Shop.—Fixtures.—You must replace the things as they were when you took the place, and as you agreed to do. He cannot charge you rent for not doing so, as your tenancy is ended, but he can sue you for damages.

A. D. T.—Wall.—Overhanging Eaves.—Your neighbour has, strictly speaking, no right to drain from his roof into your garden, and you could remove what overhangs; but probably the best plan would be to summon him in County Court for damages, and so settle the question.

Jack Plane.—Employers' Liability—Owner.—The building owner does not in any sense employ the workmen, and so cannot be liable in damages for accidents. The contractor is their only employer, and he would be responsible within the Act.

LEGAL INTELLIGENCE.

Contracting Cabinetmakers' Custom.—David Sandground, master cabinet-maker, of Philip-street, Shoreditch, was summoned to Worship-street on Saturday by two journeymen cabinet-makers named John William Gill and William Williams, for £4 3s., money due on a contract which they complained they were not allowed to finish. A counter claim was made by Mr. Sandground against the men for unfinished work and damage to material to the amount of £5. The two complainants stated that they, working in partnership, and in defendant's shop, engaged to make three sideboards for a contract price of £8 5s. The work was commenced on 18th November, the contract being in writing. According to Gill, the whole of the work could have been done in six days. Having worked five days, the men on Saturday received half the contract price as a payment on account. On the Monday Gill said they did not touch the work, feeling "lazy." They worked four and a-half hours on Tuesday, and then went to a meeting of the trade, held at a public-house, and remained away the rest of the day. It was admitted that the meeting was a strike meeting, and on Wednesday a deputation of men waited on Sandground to discuss their grievances. Gill was one of the deputation, and said that defendant refused to listen to anything until those who had contracts in his shop returned to work, and further warned them that if they did not return by two o'clock that day they would be locked out. They did not return, but Gill and others with contracts went at half-past eight on Thursday morning and were refused admission. This was a test case, as some 17 or 18 men had left the shop under the same circumstances.—Mr. Bushby asked if it was claimed as a right by the workmen that they might leave a contract job before it was finished, instead of doing the work day by day. The complainants, it was said in reply, contended that the custom of the trade sanctioned their leaving when they wanted a day off, and Williams, in his examination, said that if the workman wanted time off he took it, and neither asked leave nor gave any explanation. He said he had known a man stop away three days; but it was admitted that the practice did not relate to contracts to be completed within a given time. Mr. Bushby said it was a serious contention, because it meant that the work stood still at the pleasure of the workman, though, of course, the law would hold that a contract without a stipulated time meant a reasonable time. He was not prepared to admit the contention of the workmen. Mr. Moore, for complainants, said he had ample evidence to prove the custom of the trade. Mr. Benjamin, for defendant, replied that nearly every master would prove that there was no such custom. Mr. Bushby said this question would be settled by the custom, and the question of a strike would not enter into the judgment. The case was adjourned for a fortnight for evidence as to custom.

An Architect's Fees.—Arrangements have, the *Scotsman* states, been made under which a settlement has been arrived at in the action by the late Mr. John Rhind, architect, Inverness, against Sir John Ramsden for £2,034 odd as balance of fees in connection with the designing and building of the mansion-house of Ardverikie and other works on Sir John's estate. The chief contention of the defender was that the pursuer had originally estimated the cost of the mansion of Ardverikie at £12,758, whereas it had cost upwards of £32,000. Sheriff Blair found that no agreement was made between the parties as to remuneration, that there was no warranty by the pursuer that the works should not exceed the estimates, and found that £2,300 was a fair value for the work done, and after deducting a sum of £1,600 paid to account, gave judgment for the balance of £700, with expenses. The decision was appealed to the Court of Session, but under the minute which has been boxed, the appeal, it is understood, will be withdrawn, and Sheriff Blair's judgment approved of.

Building without Capital.—Re Francis Benedict Madden.—At the Liverpool Bankruptcy Court on Friday, Mr. F. B. Madden, a builder at Southport, came up for public examination with a statement of affairs showing liabilities £3,671, expected to rank £345, and assets £462, consisting mainly of equities. The debtor said he was a plumber by trade, and filled in his spare time by working on buildings he was erecting. In 1887 he built houses on leasehold land at Birkdale. He had no money at the time, but received advances as he went on. He thought it was possible to carry on the building trade without any capital, but the success of the business depended upon the mortgagees and the amount of advance to start. He had a very good mortgagee, but he had lost on his building speculations. The examination was adjourned to January 7th.

An Aberdeen Building Dispute.—In the Edinburgh Outer House on the 16th inst., Lord Kyllachy closed the record and sent the case to the procedure roll for discussion in an action at the instance of Alexander Middleton, a cattle salesman in Aberdeen, against three Misses Leslie, all of Powis, near Aberdeen. The pursuer sues for decree that the defenders are bound to erect on all and whole a piece of ground on the south side of Belmont-road, Aberdeen, one or more dwelling houses, or shops and dwelling houses, similar to the houses already erected by the pursuer on the south side of Belmont-road, Aberdeen, or cottages or two-story houses not inferior to those on the north side of the said road. The summons concludes alternatively for £800 damages failing the defenders to erect said buildings. The pursuer says that in 1889 he disposed by feu disposition to Roderick M'Kay, contractor, Aberdeen, the piece of ground above referred to on the south side of Belmont-road, Aberdeen, for payment of £25 yearly as feu-duty. By the said feu disposition it was provided that the said Roderick M'Kay should be bound within two years from his entry to erect on the ground disponed houses of the description above mentioned. The pursuer further says that M'Kay entered into possession, but failed to erect any buildings, and by disposition dated and recorded in May, 1889, he conveyed the subjects to, and in favour of, the defenders, subject to the provisions of the said feu-disposition. The defenders state that they acquired the ground in question for the purpose of obtaining an additional access to their feuing ground on that side, and regulating the nature of the new houses to be erected near Berrybank House. It is their intention, whenever possible, to erect buildings sufficient to secure the rights of the pursuers. The defenders further say negotiations had been going on for the widening of Berryden-road in the district. The scheme was, however, found impracticable. Afterwards plans were submitted to the town council for an alternative scheme, which contemplated a new street with a spur, giving access to the pursuer's feuing ground. They say that the direction which this new street may take must affect the subject of the action, and that it would be against the public interest to proceed to build in the mean time.

Dispute as to Rating Jurisdiction.—The dispute as to jurisdiction which has long existed between the Corporation of New Romney and the New Romney Commissioners of Sewers was decided on Thursday in the Queen's Bench Division. The Lord Chief Justice, who tried the action in July and November last, now delivered judgment. He said he had paid a visit to the place, and found that the face of the country had altogether changed since the time when New Romney became one of the Cinque Ports, and when ships came up to the walls of the town, which were now two miles from the sea. The corporation had in past times spent large sums upon sea defence, and he held that its property was exempt from rates levied by the commissioners, though he believed that the latter body had, in the course they had taken, acted from a sense of public duty. Judgment was, therefore, entered for the New Romney Corporation, with costs on the higher scale.

CHIPS.

A movement has been started to raise £2,500 to rebuild the tower of Great Chesterfield Church upon the site of a tower which existed some centuries ago, the foundations of which have been recently discovered.

On Saturday afternoon, in the Old Aisle Cemetery, Kirkintilloch, there was unveiled a memorial, erected by public subscription, to commemorate the philanthropic labours of the late Miss Beatrice Clugston, the founder of the Broomhill Home for Incurables and Convalescent Homes at Dunoon and Lenzie. The memorial took the form of a monument in Dumfries red stone, after a design by Mr. W. F. Salmon, architect, Glasgow, and with a cast bronze panel inserted in the front of the monument.

The parish church of Ashstead, near Leatherhead, is undergoing restoration at a cost of £1,600. The building will be reseated throughout, and the work also include the provision of new roof, chamber, and vestry.

A movement for the erection of a memorial of Edward Irving in his native town of Annan has lately assumed a definite shape. A statue of the great preacher has been modelled by Mr. Dods, sculptor, Dumfries, and the committee propose to unveil the memorial on the 4th August, 1892, the centenary of Irving's birth.

The Watch Committee of the Liverpool City Council have approved of a report of Mr. Percy Boulnois, the city engineer, recommending that his department should obtain information from and visit such towns or localities as may be deemed desirable for the purpose of making investigation into the question of public street lighting.

At the Barnstaple County Court on Friday, his Honour Judge Paterson granted a discharge to Francis William Abbott, builder, of Barnstaple, the order to be suspended for nine months. The liabilities amounted to £283, and the assets to £4.

WATER SUPPLY AND SANITARY MATTERS.

Birkdale Drainage Scheme.—Major-General C. Phipps-Carey, R.E., inspector to the Local Government Board, held last week a four days' inquiry, at Birkdale Town Hall, into the local board's application to borrow £19,600 for works of surface drainage, sewage effluent outlet, and street improvements. No objection was raised to any part of the application save that section which proposed to discharge the effluent from the sewage works into the tide. This the Southport Corporation, the principal public companies of Southport, the chief Birkdale boarding schools, and many Birkdale ratepayers and property owners sent legal representatives to oppose; and most of the opponents were prepared with the evidence of experts to support the opposition, based partly on sanitary grounds and partly on what was termed sentiment, but which, in a health resort, as one witness stated, was easily translatable in pounds, shillings, and pence. On Friday, the fourth day, the inquiry came to an unexpected and amicable conclusion. The Birkdale Local Board agreed to adopt the international system of treating their sewage, as recommended by the expert witnesses of the Southport Corporation, Dr. Franklin and Mr. James Mansergh. The town clerk of Southport intimated that a further suspension of the injunction against the Board would be granted until the scheme was completed. By this decision the effluent water will continue to be discharged into Fine Janes Brook as at present, and the Corporation maintain it will not pollute the brook.

East Brook and Dynas Powis Water Supply.—After a considerable amount of trouble, the Cardiff Rural Sanitary Authority have now supplied the above places with a good supply of wholesome water. East Brook, a village half-way between Cardiff and Barry, was formerly supplied with water from about one hundred wells sunk some 20ft. or 30ft. in the neighbourhood of cesspools, and surrounded with land highly manured, from which the rain water carried liquid manure into the water. The village of Dynas Powis was supplied from a reservoir and a system of pipes, ranging from 3in. to ½in. in diameter; but the supply in the summer-time was always short, and had to be distributed on the intermittent system, which was found to be both wasteful and exceedingly unsatisfactory. After various suggestions as to the best means of augmenting the supply, the Rural Sanitary Authority applied to the Cardiff Corporation for a supply of water for both East Brook and Dynas Powis, the Corporation to lay the pipes and collect their own water rates at East Brook, being within their Parliamentary district, and supply Dynas Powis in bulk. This request, after some preliminary arrangements, was granted in an amicable manner, and the work of laying the mains and fittings through East Brook was admirably carried out by Mr. Priestly, A.M.Inst.C.E., deputy water engineer to the Cardiff Corporation. The extension and distribution of the Dynas Powis water supply was carried out under a considerable difficulty, inasmuch as the excavation was entirely in rocks; but the work was carried out without a hitch by Mr. William Fraser, A.M.Inst.C.E., surveyor to the Authority. Mr. Edmund Lewis, of Dynas Powis, was the contractor for the excavation, and Messrs. Cross Bros., Cardiff, for the supply and fixing of mains and fittings. The cost of the whole of the works was about £2,000.

The partnership heretofore subsisting between Hughes and Pugh, of Newport, Mon., builders and contractors, has been dissolved.

In an appeal by the Metropolitan Railway Company against an assessment of their tunnels to the land tax, the Master of the Rolls and Lord Justice Kay decided on Friday that the company were liable to pay that duty; but Lord Justice Lopes was of a contrary opinion.

A memorial brass, designed to suit the architectural features of the justly celebrated Norman church at Melbourne, near Derby, has just been erected in the Cantrell chapel to the memory of the last bearer of that name, who was buried in the cemetery at Melbourne. The distinctive feature of the design is a large copper cross embellished with agates. The inscription is written in Mediæval Latin, and is inclosed in an incised border of a Celtic character. The work was intrusted to Messrs. Jones and Willis, of Birmingham and London.

A memorial lectern has been given by Mrs. Firth to St. John's Church, Ranmoor, Sheffield. The structure is of brass, stands about 6ft. high to the centre of the reading slope, and weighs about 4cwt. It has been designed by Mr. Pippett, and executed by Messrs. Hardman and Powell, of Birmingham, and is in Late Decorated Gothic style. There is a massive central pillar, with four other pillars and tracery forming buttresses. At the top of each of these are four archangels with outspread wings, while two cherubim, each about 18in. high, support the open-work reading desk.

STATUES, MEMORIALS, &c.

Edinburgh.—The statue of Queen Margaret has now been erected in front of the National Picture Gallery, Edinburgh, and the corresponding statue of King Malcolm Canmore is in process of erection in the corresponding niche on the other side of the doorway. This is the first practical step towards the carrying out of the scheme of decoration of the building with statues adverted to by the late Lord President Inglis at the opening ceremony of 15th July 1889. The figure of Queen Margaret, the work of Mr. Birnie Rhind, is 6ft. 6in. in height, exclusive of the plinth. It represents the queen, supporting in her left hand, and pointing to it with her right, a small model of a church. The statue of the king, Malcolm Canmore, which is to occupy the corresponding niche at the east side of the doorway, has been executed by Mr. John Rhind. The king is attired in a hauberk of mail with a short sleeve and conical-shaped helmet with nasal, while from his shoulders hangs a cloak. The cost of these figures, executed in the stone and colour of the main building, has been about £200 each. The Board of Trustees for manufactures have just received and accepted an offer of another statue, that of Mary Queen of Scots, which is to be presented by a body of Edinburgh ladies.

CHIPS.

St. John's Church, Longsight, Manchester, which has been closed for repairs and additions since July last, will be reopened for service to-day (Christmas-day).

Probate duty has been paid on £243,546 as the value of the personal estate of Mr. George Meakin, late of Creswell Hall, Staffordshire, earthenware manufacturer, who died on the 15th September last, aged sixty years.

At the Franciscan Church, Limerick, on Sunday, a new organ was solemnly opened. It has been built by Mr. John White, of Dublin.

The premises of Messrs. Willing and Co., Limited, enamellers in iron, in Clerkenwell-green, were destroyed by fire on Friday. The buildings measured 60ft. by 25ft., and were five stories in height.

In the case of Robert Evans, of Southdown-road, Wimbledon, architect and surveyor, the Registrar of the Bankruptcy Court has granted a discharge, subject to certain conditions.

At the last meeting of the committees having charge of the erection of the statues to the memories of the late Thomas and Sir Peter Coats, of Paisley, for which over £4,000 have been collected, a letter was read from Mr. Dunn, M.P., offering two sites on the vacant space at Paisley Cross. The offer was accepted, and a committee was appointed to obtain competitive designs.

The Gilesgate Infant Board School, Durham, is about to be enlarged for the Durham School Board, from designs by Mr. H. T. Gradon, architect, Durham.

Mr. John Dugdale, who for the last 25 years had been engineer to the Chester Waterworks Company, died at his residence, Boughton, Chester, on Thursday, the 17th inst., from heart-disease and peritonitis, at the age of 65.

The King and Queen of Italy opened on Friday a new bridge across the Tiber, a work begun in 1889. It is reached from the Porta del Popolo by two converging roads immediately opposite the entrances to the Pincian. The bridge, with the foundations, has cost £310,000 sterling, and is named Ponte Margherita, after the Queen.

Mr. H. Soper, builder, of Brent, left home the other morning for Great Aish, where he was erecting a building, and near the village he was found lying in the road dead, his pony standing not far off. It is supposed that the pony stumbled, and that Mr. Soper in falling off pitched on his head, breaking his neck.

At the Staffordshire Assizes, held at Hanley on Wednesday week, Howard Robert Ram, aged 52, an estate agent, of Newcastle-under-Lyme, was sentenced by Mr. Justice Day to seven years' penal servitude, for forging transfers of shares in a Starr Bowkett Building Society.

Wolston Baptist chapel, Coventry, was reopened on Friday after renovation and improvement. The work was carried out by Mr. J. Worwood, of Coventry.

To improve the drainage of a large tract of low-lying land on the shores of Morecambe Bay, and to overcome the silting process which is going on at a considerable rate in consequence of reclamation operations, powerful pumping plant has just been put down by Messrs. Tangyes, of Birmingham. Messrs. John Hopkinson and Son, of Princess-street, Manchester, with whom has been associated Mr. E. Howard Dawson, F.S.I., of Lancaster, were the engineers, the whole cost of station being about £2,000.

Our Office Table.

The death is announced of Mr. Edwin Thomas Howell, architect and surveyor, of Southampton, which occurred at his residence, Laura-place, in that town, last week, after an illness of six weeks, in his sixty-eighth year. Mr. Howell was a native of Southampton, and for a long period he was actively identified with the Polytechnic Institution, of which at the time of his death he was one of the vice-presidents. He was also a director of a local building society, and surveyor to the County of Hants Land and Building Society. He was more widely known as the architect and surveyor to the Southampton School Board. He was appointed to that position by the first Board, elected over twenty years ago, and has retained it ever since. The School Board offices, and all the school buildings and works connected with the School Board, have been erected under Mr. Howell's immediate supervision. During his illness his office has been temporarily filled by Mr. J. H. Blizard, of the firm of Lemon and Blizard. He was a prominent member of a local Freemasons' lodge, of which he was the senior past master.

The Middlesex County Council have referred to a committee for consideration and report a new scheme drawn up by the chairman, Mr. Littler, Q.C., C.B., for the acquisition in the public interests, of the Alexandra Palace and Park. It was explained that the Financial Association, who now own the Palace and grounds, will sell the whole of the 414 acres to the Middlesex Council for £275,000. There are 28 acres of leasehold, the purchase of which would cost about £16,800. Mr. Littler suggests that the partitions in the buildings should all be removed, and that the Palace should be thrown open from end to end, a number of semi-hardy trees being placed in the building, so as to form a public covered promenade. The amount required for the purpose of buying the buildings and grounds would be about £300,000. The London County Council might, the chairman is sanguine enough to think, give £100,000; the Corporation of London, £40,000; the Middlesex County Council a modest £15,000; and the remainder, £145,000, by the local authorities, possibly including the railway companies interested. Some small strips of land around the Palace and Park could be used for building purposes, and would bring in about £2,100 a year.

The recent disfigurement of the river façade of Somerset House by the hideous brickwork additions to King's College was brought before the London County Council by Mr. Arthur Arnold at their last meeting; but, as might have been expected, the chairman of the Building Act Committee, who replied to the interrogation, could only express regret that the County Council had no control over the matter.—Even Her Majesty's Commissioners of Works are equally powerless, for Mr. Plunket has written, in reply to a letter from Mr. Anderson, P.R.I.B.A., explaining that he had already communicated with the Council of King's College, claiming that the assent of the Crown was necessary before additions could be made to the College buildings. To this the council demurred, and Mr. Plunket now, to his great regret, finds their assertion of independence of all control supported by the law officers of the Crown.

At King's College, on Thursday night in last week, there was an exhibition of work with presentation of prizes gained by students in the wood-carving and architectural and building construction classes, which have the support of the Carpenters' Company, in connection with the council of King's College. The proceedings took the form of a conversazione, ladies joining in the initial reception by the Rev. Dr. Wace and members of the court of the Carpenters' Company. There was an exhibition of work on the walls of the corridors, and in the many classrooms, whilst entertainment was provided by Professor Banister and Mr. B. F. Fletcher in a magic-lantern display of views of some of the most celebrated buildings of the world. In the theatre of the institution Mr. Henry Harben, L.C.C., distributed the medals and prizes to the successful students. About £120 in money and a number of silver and bronze medals were distributed, and Professor Banister Fletcher told the company that there are at present 590 students in the evening classes and 215 in the day classes. This was a valuable course of education, which Mr. Harben had recognised by the gift of £100, to assist in carrying on. Mr. Henry Harben, L.C.C., after distributing the prizes, referred to the work to be seen on all hands that night as proof of the perfection to which architectural drawing and construction may be brought.

A valuable collection of original drawings and sketches by British artists has been presented to the Nottingham Castle Art Museum by Mr. Felix Joseph, who had previously been a munificent contributor to the Museum, and the gallery containing the collection was formally opened by the Duke of St. Alban's, Lord-Lieutenant of the county. There are 457 sketches by Thomas Stothard, R.A., and about 600 drawings by other artists, including Robert Smirke, E. M. Ward, Paul Sandby, John Flaxman, Richard Westall, George Cattermole, Henry Fuseli, J. T. Sargent, Thomas Uwins, C. R. Leslie, and sixty others, all of whom are more or less connected with the illustration of books in the early part of the century.

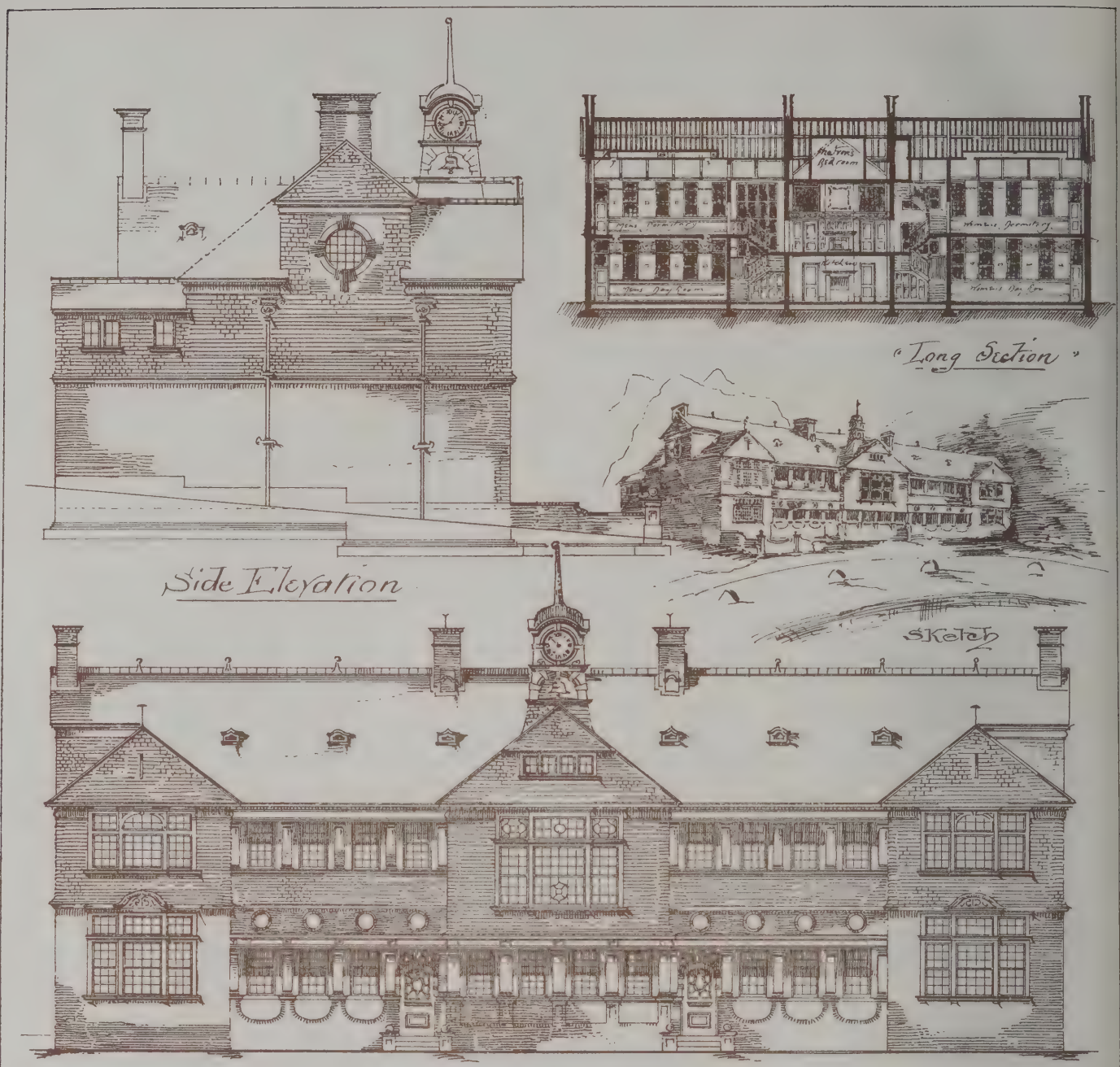
The old boundaries of the city of Vienna were abolished at midnight on Sunday, and Greater Vienna was formally inaugurated. By the breaking down of the old excise wall, and the removal of the toll houses, the area of the city is enlarged from 55 to 178 square kilomètres, making the capital half the size of London, more than twice as large as Paris, and nearly three times the size of Berlin. The population has, however, only increased from 900,000 to 1,300,000. The excise wall, which is about to be demolished in connection with the works for the proposed Metropolitan Railway, only dates from 1738, when it replaced in masonry an earthern rampart, constructed 34 years earlier as a protection against the invasion of the Hungarians. As fortifications, the Linien were insignificant, but they formed an outer girdle to the circle of battlements and bastions which covered the space over which the Ring, with its magnificent public buildings, now stands.

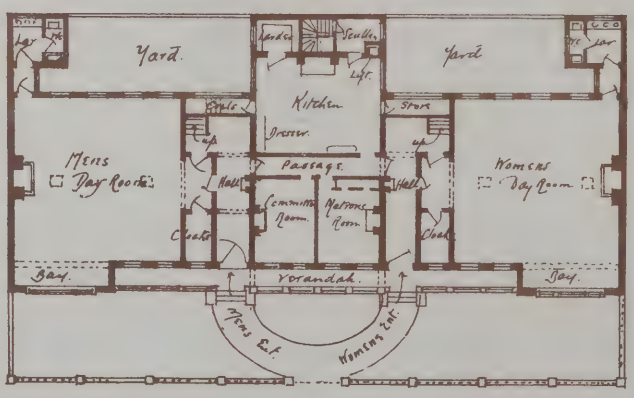
On Saturday last the annual dinner of the well-known firm of architectural and constructional ironfounders, Steven Bros. and Co., 4, Upper Thames-street, E.C., was held at the Freemasons' Tavern, Great Queen-street, the president being Mr. Alexander Ritchie, C.C. The customary loyal and other toasts were duly honoured, that of "The Visitors" being responded to by Mr. V. M. Navalkar, of the firm of Thomas Black and Co., plumbers and sanitary engineers, Bombay, who is on a business visit to the United Kingdom. Mr. Muir proposed the toast of the parent firm, "McDowall, Steven, and Co.," Glasgow, and was followed in response by Mr. Grimmond, a representative of the Glasgow house. One of the senior travellers of the firm, Mr. Lockwood, then proposed the toast of the evening, "The President," which was drunk with great enthusiasm, and called forth from Mr. Ritchie an appropriate speech, concluding with the hope that for many years to come he would have the pleasure of being present on the occasion of such reunions. A well-selected programme of vocal and instrumental music was carried out by a number of the employés, and altogether a very harmonious and pleasant evening was spent.

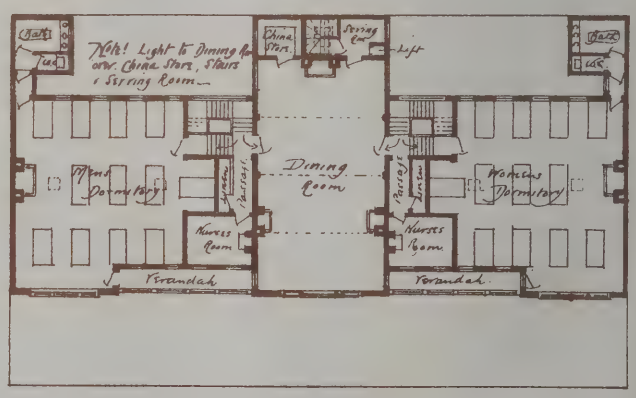
The Unity Building in Chicago, the loftiest in the world, is almost completed. Although it is sixteen stories high, the perpendicular is said to be only a little more than half an inch out of plumb; and one of the first civil engineers in the United States has recently reported that the foundations are thirty-three and one-third per cent. stronger than the average. The exterior of the building has often been described, but not the interior. The main entrance rises in a Roman arch to the second story. The grand hall or corridor is wainscoted in marble, and the gallery affording entrance to the offices on the second story is also of marble. Six elevators, having a front of silver-plated metal-work, run from the basement to the sixteenth story. The stairway is of steel, with marble steps, and everywhere throughout the building is seen the combination of silver plate and marble. The partitions between offices are of hollow tile and crystalline glass, the wainscoting and woodwork of oak, and the floors of white maple. The illumination is furnished by electricity. The light-shaft extends from corridor floor to roof, and is lined with white porcelain brick. In the Unity, the Auditorium, and the Rookery, Chicago now has three of the largest buildings of their kind in the world.



Printed & Printed by James Akerman 6 Queen Square, W.C.



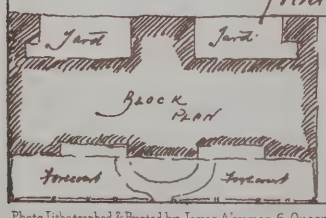




Ground Plan.

PLACED · FIRST ·

First Floor.



B.N.D.C.

A CONVALESCENT HOME — by "Similasch the Gothy."

Nov. 1891

Scale to Plans.

10 0 10 20 30 40 50 60 70 80 FEET.

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BUILDING NEWS DESIGNING CLUB.

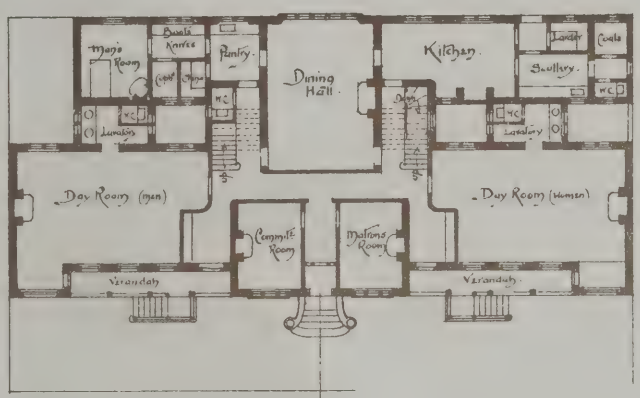
— A Small Convalescent Home —

by "Ayrshire"

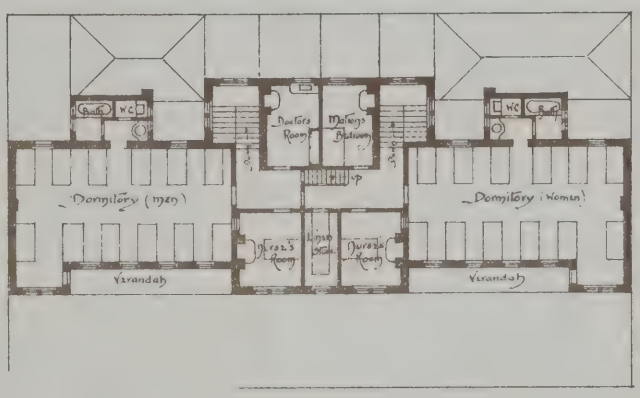
PLACED · SECOND



— Front Elevation —



Ground Floor Plan.

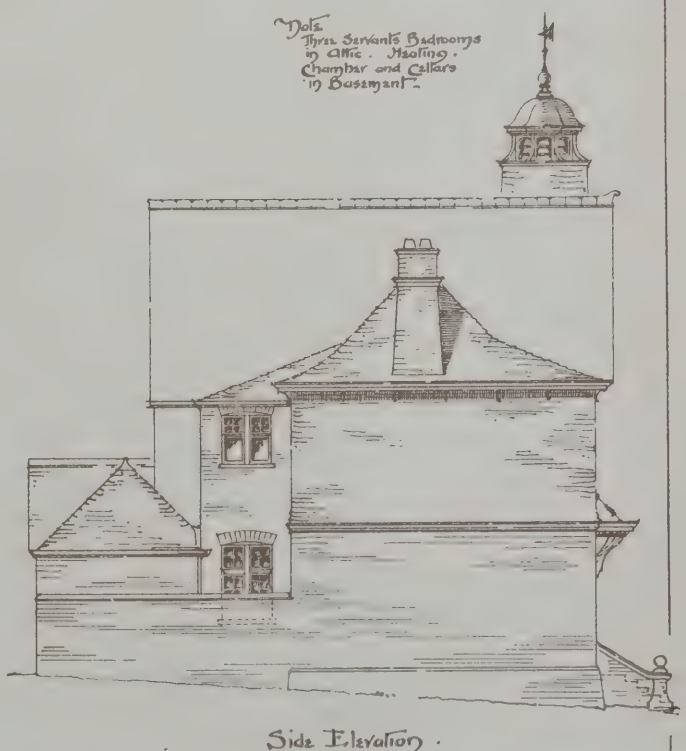


First Floor Plan.

Note.
Three Servants Bedrooms in Attic. Heating Chamber and Cellars in Basement.



Section.



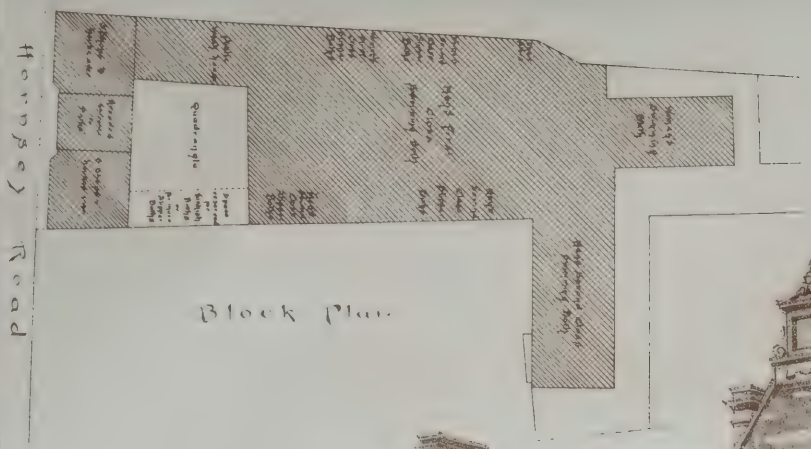
Side Elevation.

Scale to Plans.

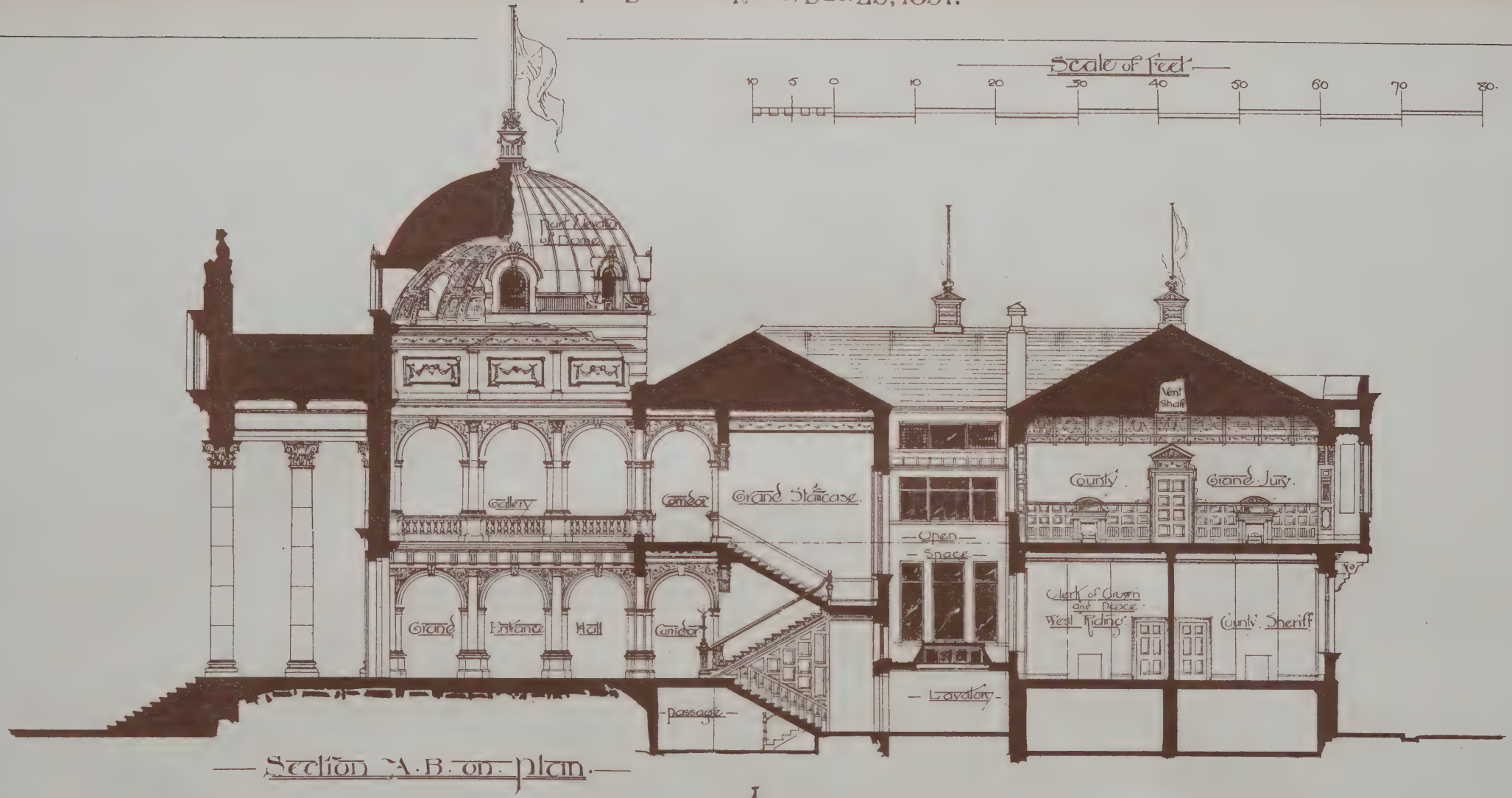
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NEW BATHS AND WASH-HOUSES · HORNSEY ROAD · N·

SELECTED DESIGN BY A. HESSELL · TILTMAN · F.R.I.B.A. ARCH.I



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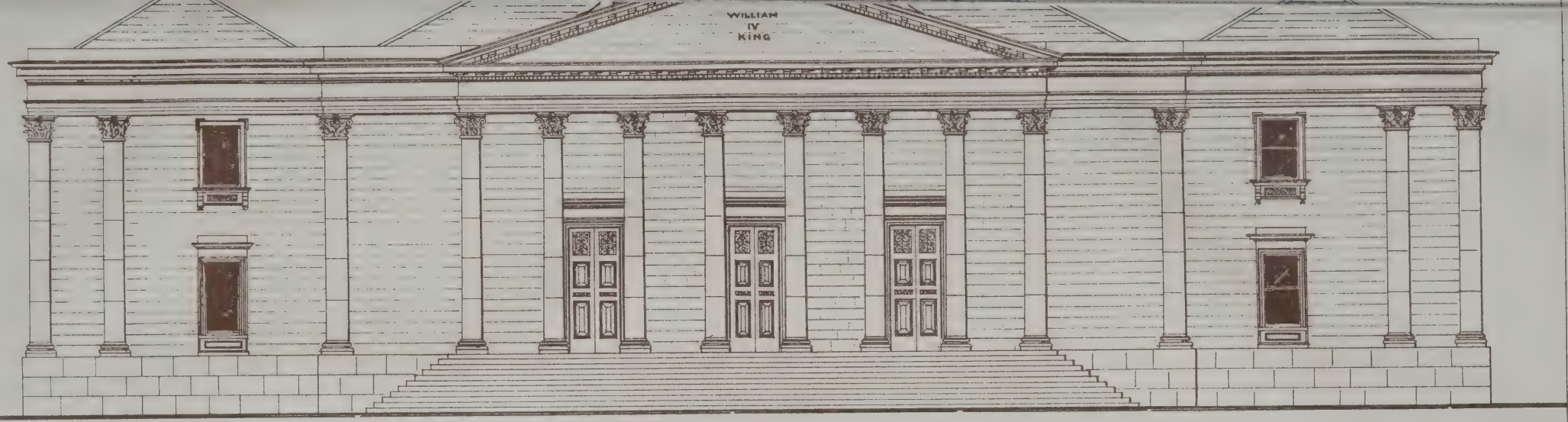


Section A.B. on plan.

CORK COURT HOUSE COMPETITION.

SELECTED DESIGN BY W.H.HILL, F.R.I.B.A. ARCHT.

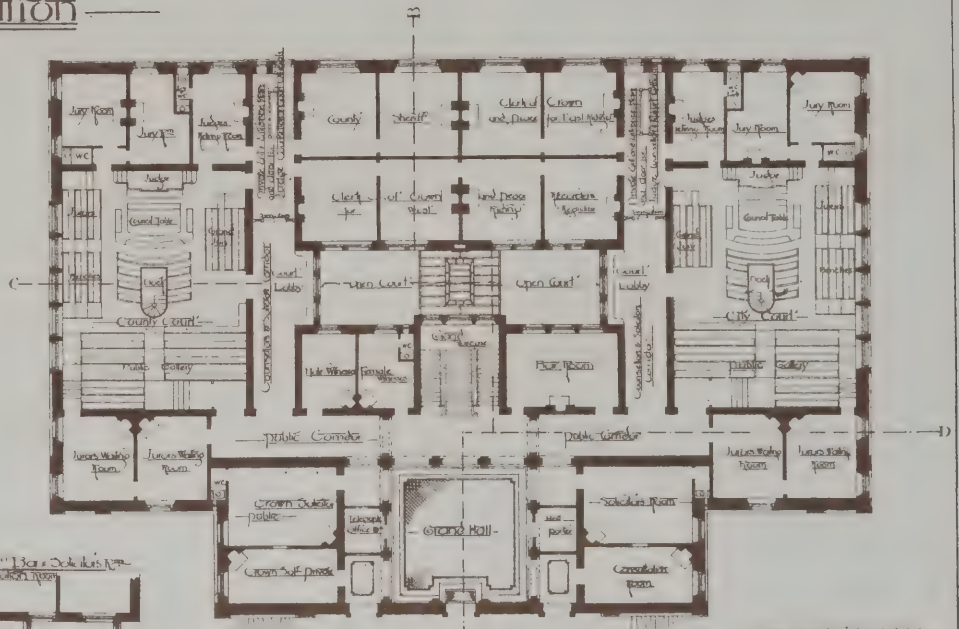




Front Elevation



First Floor Plan



Principal Floor Plan

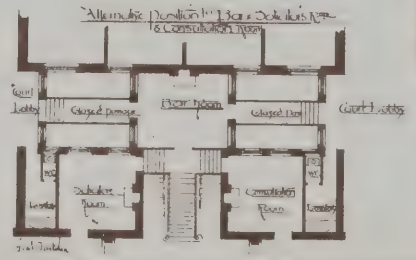


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TWO VIEWS OF LEVENS HALL NEAR KENDAL



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